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ABSTRACT

Following an introduction ("Return on Investment in Training" by Andrew Smith) that provides an overview and a synopsis of research findings, the following five chapters of this book present the results of five research projects funded by the National Research and Evaluation Committee in Australia in 1999-2000. The first four of these projects examined the returns to enterprises of their investments in training using a variety of methodologies including case studies and surveys. The fifth project was part of a suite of work that investigated the development of training and learning cultures in Australian enterprises, emphasizing non-financial returns to training. The following reports are included: "Training and Economic Returns to Workers" (Michael Long); "Showing That Enterprise Training Pays: Lessons from the Literature" (Janelle Moy); "Does Training Pay? Evidence from Australian Enterprises" Richard Blandy, et al.); "Enterprise Return on a Training Investment" (Chris Doucouliagos and Pasquale Sgro); "What Works for Us May Not Work for You" (Leo Maglen and Sonnie Hopkins"; and "What Convinces Enterprises To Value Training and Learning, and What Does Not?" (Jane Figgis). Each of the chapters contains extensive reference lists. (KC)

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return on investment in training: an introduction

Andrew Smith

Until recently, there have been few empirical studies carried out in Australia of the returns to firms of their investments in training. Yet, at a time when employers are becoming ever more conscious of the value to be realised from their investments, those responsible for training and development in firms are coming under increasing pressure to justify their budgets to senior managers. This chapter reviews some of the evidence for returns to training investments from overseas and introduces the recent Australian work which is the subject of the succeeding chapters in the book.

IN GENERAL, STUDIES of enterprise returns on training investment overwhelmingly indicate that firms recoup their investments in training many times over in raised productivity and enterprise performance. Moreover, results from the Employer Satisfaction Survey conducted by the National Centre for Vocational Education Research (NCVER) indicate that employers who use the vocational education and training (VET) system are very satisfied with the results they obtain. In 2001, 80 per cent of employers of VET graduates indicated that they were satisfied or very satisfied with the performance of the VET system. Sixty-nine per cent of employers indicated that they were satisfied with the work skills that their VET graduates had acquired and 90 per cent said that they were satisfied with the work ethic of their VET graduates (NCVER 2001).

Despite this high level of satisfaction of employers with the outcomes of the VET system, the case for increased investment in training at the enterprise level appears to be poorly understood by many employers. This chapter will summarise the findings from these international studies and from work currently being managed by NCVER in Australia.

However, a note of warning needs to be sounded about the results from this research. All studies of enterprise returns are dogged by two problems:

- *The problem of the separation of variables*

  Enterprise performance is affected by a myriad of factors. The larger the enterprise, the greater the number of potential variables that can influence enterprise performance. These include the level of competition

in the market, the level of investment in new technology, the demand for the products and services of the enterprise, the skills of the management team and so on. In practice, although training may influence the performance of the enterprise, it is difficult to separate the impact of training from the impact of other variables.

- *The problem of the direction of causation*

  Whilst studies may find that it is the successful and more profitable enterprises that invest more in training, who is to say that it is the training that causes the success of the enterprise rather than the profitability of the enterprise that drives further investments in training? Is training a determinant of enterprise success or a result of it?

econometric studies

These studies attempt to establish a direct link between training investment and enterprise performance—usually levels of labour productivity. These studies are based on human capital theory, which asserts that individual employees and enterprises will benefit from their investments in training. Enterprises will enjoy a higher level of labour productivity because employees will be able to work more efficiently and effectively. The productivity benefits that the enterprise reaps will be passed on to the individual worker through higher wages. Thus, many of these studies track the wages of workers who have received training and deduce that these higher wages must reflect the productivity dividend that the enterprise gains from investment in training.

This approach, however, has some problems in that there are many other factors, which may affect the wages of workers other than training. Recent studies have attempted to establish a more direct link by isolating the training variable mathematically and modelling the impact of training on enterprise productivity. The best known of these studies have been those carried out in the United States by Ann Bartel at Columbia University (Bartel 1994, 1995, 2000). In her 1994 study, Bartel examined data from the 1986 Columbia Business Survey covering 495 United States enterprises. This allowed correlations to be made between the data on business performance and training activity. Although the measurement of training activity was very crude, Bartel was able to model the impact of formal training programs on labour productivity. The major finding of this study was that enterprises that were operating below their expected labour productivity levels in 1983 and that subsequently implemented new employee training programs experienced significant increases in productivity growth between 1983 and 1986. This higher rate of productivity growth was sufficient to bring these enterprises up to the labour productivity levels of comparable enterprises by 1986. In other words, the implementation of training in low productivity enterprises enabled them to boost their productivity performance over a three-year period.

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In her 1995 study, Bartel examined the personnel records of a single large enterprise to estimate the impact of training on the performance ratings of employees. This study focussed on the impact of on-the-job training. Since all employees underwent an annual performance appraisal/rating exercise, Bartel was able to measure the impact of on-the-job training on the performance of individual employees. The results show that individual workers who received training in 1989 were significantly more likely to receive increases in their performance ratings in the following year, suggesting a positive effect on job performance. From the same data, Bartel calculated that the rate of return to the enterprise from on-the-job training was in the order of 35 per cent, assuming that skills depreciate at ten per cent per annum (a half life of 5.4 years).

Many other studies in the United States have reported similar findings about the positive impact of training investments, although few with the quantitative precision of Bartel.

National Institute of Economic and Social Research Studies

A refinement of the human capital approach has been to move away from stressing the links between training and higher labour productivity in terms of wages to an approach which stresses the importance of education and training in preparing the workforce to become more flexible and adaptable, thereby enabling enterprises to successfully innovate and introduce change (Marginson 1993).

This neo-human capital approach has been the focus of a series of studies carried out by Sig Prais, Karin Wagner and others at the London-based National Institute of Economic and Social Research (NIESR) undertaken in the mid 1980s and still continuing. The initial studies in the series examined the reasons for the significant productivity differences reported between United Kingdom and German enterprises in the same industry sectors. These studies involved 'matched' plant comparisons of United Kingdom and German enterprises in a number of industries, including metal manufacturing, furniture production, clothing and hospitality.

Generally, the conclusions of the studies showed a similar picture emerging in each of the sectors examined:

- German enterprises enjoyed productivity advantages of between 100 and 230 per cent over their matched rivals in the United Kingdom.
- Managers with intermediate-level skills (supervisors in the United Kingdom, Meister in Germany) enjoyed far more autonomy in planning and decision making in Germany than their United Kingdom counterparts.

- German enterprises had a much clearer strategic direction than their United Kingdom rivals. In some industries, such as clothing, this meant that the German companies had abandoned some markets altogether to pursue high margin, niche markets, leaving United Kingdom enterprises to compete at the low-cost end of the market.
- At all levels, from shop floor operator to general manager, German employees were more highly qualified than United Kingdom employees. German shop floor operators usually possessed 2–3-year formal qualifications in the industry; German craftworkers had been given more specialised training than United Kingdom tradespeople; German Meister had undergone significantly more technical and managerial training than United Kingdom supervisors; and, at middle/senior manager level, undergraduate and higher degrees were common amongst German managers but rare in United Kingdom managerial ranks.

The NIESR researchers concluded that higher levels of skill, as represented by the qualifications of the German workforce, was the determining factor in the success of the German sample enterprises in all cases.

In their later studies, the NIESR researchers modified their advocacy of the primacy of skills in accounting for productivity differences between United Kingdom and European enterprises. In a matched plant study of the United Kingdom and German chemical and engineering industries in 1992–93, Mason and Wagner (1994) found that Germany only enjoyed a productivity advantage in the engineering industry. Moreover, the German superiority in skills was principally focussed at the intermediate level—technical and professional skills—rather than across the board as the earlier studies had indicated. It was the ability of the German enterprises to cope with the increasing technical uncertainty of the engineering industry more effectively than their United Kingdom counterparts that gave them the productivity advantage. A further 'matched plant' exercise by the NIESR researchers compared biscuit manufacturers in the United Kingdom, Germany, France and the Netherlands (Mason, van Ark & Wagner 1994). In this comparison, United Kingdom enterprises compared favourably in terms of simple productivity, the major difference between the United Kingdom and European plants being in quality. The European enterprises produced higher value-added, more complex products aimed at the luxury end of the biscuit market. Again, it was the existence of higher levels of intermediate skills amongst baking and supervisory staff that enabled the European producers to pursue a higher value-added strategy than the United Kingdom manufacturers.

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the high performance workplace

In recent years, the notion of the high performance workplace has emerged in which a range of innovative management and working practices are adopted which enable enterprises to make significant improvements in their

productivity, quality and overall performance levels. Typical of the high performance work practices that have been adopted are:

- lean production methods
- total quality management
- teamworking
- re-engineering of processes

Investigations into the adoption of high performance work practices in the United States has revealed that training plays a critical role in the successful transition of enterprises to high performance. In a survey of 694 manufacturing enterprises in the United States, Osterman (1994) assessed the extent of adoption of four high performance work practices—total quality management (TQM), teamwork, job rotation and quality control circles. Examining the human resource management practices that underpinned the new work practices, Osterman found that implementation of high performance practices was accompanied most frequently by innovative pay schemes such as pay for skill, a high valuation of workforce commitment and extensive training.

The implementation of high performance work practices also tended to require more skills but only for technical/professional employees and skilled, blue-collar employees. There was also a distinct difference in the type of skills required. Whilst technical/professional employees were selected on the basis of their professional competence, blue-collar employees tended to be selected on the basis of generic skills such as interpersonal skills and the ability to take responsibility (Osterman 1995). In terms of training, Osterman found that enterprises faced a clear 'make or buy' decision. The implementation of high performance work practices encouraged more extensive training, but this training tended to die away over time as employees became skilled in the new practices. The most important work practices associated with on-going training were the quality-related practices of TQM and Quality Control Circles that required higher levels of responsibility and problem-solving behaviour from employees. Training was also highly correlated with more humanistic managerial values that accepted the need for enterprises to take some responsibility for the personal and family wellbeing of employees.

MacDuffie's research (MacDuffie & Kochan 1995) into the adoption of high performance work practices in the world auto industry showed that extensive training was a critical part of the 'bundles' of human resource management practices that had to underpin the successful transition to high performance. MacDuffie & Kochan (1995) used data from the Massachusetts Institute of Technology study of the global auto industry relating to training and compared this to the implementation of flexible production systems (lean production) and the use of technology in the manufacturing process. Flexible production included:

- ❖ the use of teamwork
- ❖ job rotation
- ❖ involvement of production employees with quality tasks
- ❖ emphasis on interpersonal skills in hiring decisions
- ❖ performance-related pay systems
- ❖ the reduction of status barriers between managers and employees

They found that training was closely related to the implementation of flexible production systems. More training was provided for employees in flexible production plants than in traditional, mass production plants.

recent studies in Australia

Studies of returns on training investments in Australia are rather rare; however, there are three recent studies which have shed considerable light on the issues.

In 1999, the Australian Industry Group released its influential report, *Training to compete* (Allen Consulting Group 1999) produced by the Allen Consulting Group. This report canvasses a number of the issues addressed in this chapter. Whilst not concerned directly to examine the returns to industry of training, the report sets out a cogent argument for the importance of effective training to the stimulation of innovation in Australian industry and of the growing importance of generic or 'soft' skills and intermediate skills in the enterprise. The report shows that a greater number of innovative or best performing enterprises are likely to see a strong link between training and their competitiveness and that skills will be attractive to potential investors.

Work carried out by Smith and colleagues from Charles Sturt University for the National Research and Evaluation Committee (Smith et al., forthcoming) investigated the training implications of the adoption of a range of high performance work practices (new management practices). Although this study did not measure the rates of return to training, it showed that the successful implementation of teamworking, total quality management and the learning organisation depended on significant and extensive investments in training at all levels in the enterprises included in the study. In general, successful enterprises were using training to develop the generic skill of their employees, confirming the work of Osterman and others in the United States on the high performance organisation (see above).

A project carried out by Deakin University for the Office of Training and Further Education in Victoria (OTFE 1997) examined ways of measuring the costs and benefits associated with investments in training. The focus of the project was not on calculating the returns for the participating enterprises but on examining their ways of evaluating their training activities. However, calculations for the training of design managers in Western Mining Company

estimated that the company realised a rate of return of at best 150 per cent and at worst 34 per cent on their training investments for this particular training program. The differences depended on the means used to calculate the net present value of the training activity.

this book

This book presents the results of five research projects funded by the National Research and Evaluation Committee during the period 1999–2000. Four of these projects examined the returns to enterprises of their investments in training using a variety of methodologies including case studies and surveys. The intention behind the projects was to not only examine the validity of claims made for positive returns to training expenditure but also to develop ways in which enterprises might be able to measure these returns for themselves. The fifth project was part of a suite of work that investigated the development of training and learning cultures in Australian enterprises. This project examines some of the non-financial returns that enterprises can gain from their training investments.

The first chapter by Mike Long of the Australian Council for Educational Research reviews the international literature on the economic returns to training from both the point of view of the employee and the employer. The principal return for the individual is increased wages. The results of studies of wage effects vary considerably, but many have found that the average wage increase is in the order of 7–10 per cent for workers who receive employer-sponsored training. The size of the effect depends on a number of factors, including the mix of general and specific skills, the content of the training and the duration of the training. For employers, the returns to training are in the form of increased productivity. The size of the return depends on a variety of assumptions that economists make about the costs of training and the depreciation of the returns over time. As Long points out, the skills depreciate over time, anywhere from 4–12 per cent per year. The higher the depreciation of the skills the lower the total benefits from training and thus the lower the returns. This has significant implications for industries that are experiencing a high rate of change in which skills become obsolete very quickly.

Janelle Moy from the University of Technology, Sydney also reviews the literature on returns to investments in training. Her review, however, examines the nature of the concept of returns to training investments. She questions the adoption of the purely financial approach implied by the notion of return on investment (ROI) and instead advocates a much broader approach based on the notion of a return of training investment (ROTI). She surveys the available studies on ROTI and on evaluation of training in general. At the end of the chapter, Moy discusses alternative approaches to assessing returns on training investments, including the balanced scorecard and the concept, popular in Sweden, of human asset accounting.

Richard Blandy and his colleagues take an economy-wide approach to assessing the returns to training investments by firms. They replicate the work of three major overseas studies in Australia. These studies were the 1982 Employment Opportunity Pilot Project survey of employer training in the United States, the study by the Centre for Economic Performance (LSE) of the impact on firm profitability of the quality of employer training undertaken in the mid 1990s and the matched plants comparison work of the National Institute of Economic and Social Research. The results of this work were that Australian firms provide extensive training for new employees but only gain productivity increases from initial employee training about two-thirds those of United States firms. This is mainly because of the lower initial wages paid in the United States compared to Australian firms. The surveys were also supplemented by case studies of Australian firms. Together, the evidence that Blandy and his colleagues amass suggests strongly that the profitability of firms is directly related to the quantity and quality of their training.

One of the most interesting studies in the group was carried out by Chris Doucouliagos and Pasquale Sgro of Deakin University. Building on earlier work that they undertook for the Victorian Office of Training and Further Education, Doucouliagos and Sgro carried out in-depth investigations of the returns to training investments in eight firms. Focussing on particular training programs in each of the firms studied, they calculated both the cost–benefit ratios for training and the final returns on training investments experienced by the firms. The results show that the returns to training can be very high indeed, with some firms experiencing returns of up to 5000 per cent on their expenditures over time. They also point out that returns to training can come in many forms. Amongst the firms that they studied, Doucouliagos and Sgro show that returns come not only in the form of productivity increases, as assumed in the economics literature, but also in terms of lower employee turnover and reduced recruitment costs or lower WorkCover premiums for a decrease in work-related accidents.

Leo Maglen and Sonnie Hopkins at Melbourne University report on their study of 30 firms in the manufacturing, retail and hospitality sectors. The case studies used extant firm-level data to make some estimates of returns on training investments but also examined the relationship of training to other factors in the firms, particularly to business strategy and to other human resource policies. They found that in many cases, although not all, training investments had led to positive returns for firms, but a critical finding for Maglen and Hopkins was the relationship of training to other human resource policies. Testing the notion of the 'bundling' of human resource practices to achieve greater effects for firms, Maglen and Hopkins show that training is a critical element in these bundles and that the returns to training cannot be fully realised unless training supports other initiatives in the firm.

Finally, freelance consultant Jane Figgis examines what makes firms value training. This project involved two stages. In the first stage, a number of case

studies were carried out on how and why firms use training. In the second stage, another group of firms was given the results from the first stage and asked to comment on what they might learn from the studies. Figgis shows that the organisational culture of firms is a critical factor in the promotion of training. There is no such thing as a 'training culture' *per se*, but some aspects of organisational culture are more supportive of training and learning than others. Figgis shows that these positive aspects of culture place significant emphasis on communication in firms, including people talking about what they have learned and according others genuine respect.

the main findings

The results from this work provide a solid body of evidence across a range of sectors that training investments can yield very high levels of returns for firms. The research has highlighted a number of important factors about returns to training:

- *Returns to training investments are nearly always positive and can be very high.*

  Many of the researchers examined case studies of individual firms and found that returns varied between 30 per cent and 7000 per cent. These are very high returns indeed. Examples included a rail company which implemented a driver-training program. The resulting savings in fuel economy from the smoother driving techniques learned by the drivers resulted in a 30 per cent return on the costs of mounting the training. A chemical manufacturing firm implemented a comprehensive health and safety training program for all its employees. This resulted in significant reductions in lost time accidents and in WorkCover premiums for the company. The firm realised a return on their investments in training of over 1200 per cent. A welfare organisation implemented an employee relations training program for its managers in regions that were experiencing high levels of staff turnover. The training program resulted in reductions of turnover of up to 70 per cent in some regions. The organisation realised a return on its training investment of over 7000 per cent as a result of the dramatic reduction in recruitment costs associated with lower turnover.

- *Returns can come in many forms.*

  The returns to training investments are not always in the form of increases in labour productivity or profitability, which have been the usual variables that researchers in this area have been concerned to measure. As the examples quoted above suggest, returns can come in the form of a number of measures including:

  - higher levels of value added activities as a result of higher levels of skill

- greater flexibility amongst employees who can perform a range of tasks
- reduced overhead costs to the firm such as more efficient use of existing facilities, lower consumable costs and reduced human resource expenses
- greater ability to innovate in terms of adopting new technology and introducing better forms of work organisation

This means that firms need to be aware of the range of ways returns to training investments might be realised and develop means of measuring these.

❖ *Returns to training are highest when the training is highly focussed.*

Training pays when it is focussed on a specific business problem, such as the high levels of staff turnover in the example quoted above. Training also yields higher returns when it is linked to innovation, particularly technological change.

❖ *Training acts as a support mechanism for other changes in firms.*

The NCVER-funded work and work carried out in the United States shows that training does not act alone to improve the performance of firms. The importance of training lies in the fact that it allows firms to introduce change more successfully. Thus firms experience considerable productivity benefits from the introduction of new technologies. But they do not realise those benefits fully unless employees have been properly trained to operate and maintain the new equipment—similarly, with other forms of innovation. Thus training pays its highest dividend to firms when it is linked to 'bundles' of other innovative practices such as new ways of working and new forms of organisational structure.

❖ *Training has to be linked tightly to the specific needs of the business.*

Training needs to be focussed on a clearly identified business problem. The more focussed the training on the actual needs of the business, the higher the return that the firm will experience from its investments in training.

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training and economic returns to workers

Michael Long

This chapter draws on an extensive Australian and international literature to describe the effect of participation in formal enterprise-based training on the wages of employees. Estimates of the size of wage effects vary substantially among studies but average around eight or nine per cent. Few studies calculate the rates of return associated with these wage effects because the necessary data are usually not available. This study estimates rates of return by making assumptions about key variables. The process of producing these estimates provides an opportunity to discuss several influences on the rates of return to training, including the hours of training, the division of the benefits and costs of training between employers and employees, depreciation in the value of training, the rate at which returns diminish, whether returns vary among categories of workers, and the adequacy of training provision.

introduction

WE LIVE IN the age of the knowledge economy and global competition. New technology and organisational structures require a more skilled workforce. In Australia and other Western countries employment is shifting towards more skill-intensive occupations and industries. Earning differentials have also moved in favour of the better educated and those with more skills despite higher levels of educational participation. Workers are expected to be more flexible, both in their current employment and in finding alternative employment. The ageing of the workforce means that less reliance can be placed on initial education and training and a greater emphasis needs to be given to on-going skills formation, especially in the workplace.

At the same time, there are aspects of the labour market that do not sit comfortably with the picture of a rapidly increasing demand for skills. The number of part-time and casual jobs has been growing disproportionately. While employment has been growing in high-skill areas, some categories of low-skill work have also increased their employment share. Nor is it clear that people are changing their occupation more now than previously, or that enterprises faced with competition are those that provide the most training for

their workers. And technology can sometimes remove the need for skilled workers instead of creating it.

training

This chapter focusses mainly on formal training undertaken by workers as part of their job—what is termed 'enterprise-based education and training'. This training is not always explicitly captured as part of an educational system. Nevertheless it is important. The Australian Bureau of Statistics (ABS) 1997 survey of education and training found that in Australia employees on average receive 16.5 hours of employer-supported formal training in a year—a value that translates into about an additional year of schooling during an employee's working life, and much more for some workers. The ABS 1996 survey of training expenditure found that firms spent 2.5 per cent of their total wages and salary bill on the training and education of their employees—a total of $1179m, which is a little over 0.8 per cent of GDP or 15 per cent of total expenditure on education (see Long & Lamb 2001).

Not only are the resources devoted to enterprise-based education and training extensive, there is a suspicion on economic grounds that employers provide too little. This becomes all the more important if the pay-off from enterprise-based education and training is substantial.

The few studies that measure informal training show that formal training is only a small part of the total training effort. Frazis et al. (1998a) estimated that for every hour of formal training there were two hours of informal training. Bishop (1991) found that formal training was only eight per cent of the total hours of training of new hires in the first three months after joining the firm. A Canadian survey of adult learning activities found that adults average about 15 hours per week on informal learning, or vastly more than is spent in the formal education and training system (Livingstone 1999).

These results suggest that in any study of the incidence and consequences of formal training, there is a substantial amount of unmeasured informal training. There is little evidence about the way in which these two forms are related—whether informal training is a substitute for formal training (that is, they are negatively related) or whether formal and informal training complement each other (that is, they are positively related).

who benefits?

There are two main beneficiaries of enterprise-based education and training:

- the enterprise that provides the training
- the worker who receives the training

Other chapters in this volume address the benefits that accrue to enterprises. This chapter draws on an extensive international literature to discuss the benefits of training for employees.

The potential beneficiaries are not restricted to the enterprises that provide the training and the workers who receive that training. Other enterprises can benefit by recruiting already-trained workers. Other workers, both in the enterprise that supported the training and in enterprises that recruit the trained labour, can learn new skills by observing trained workers. Consumers can benefit if the training results in new products, products of higher quality, or products at a cheaper price. And, to the extent that workers and enterprises benefit from training, governments will benefit from increased taxation revenue.

Discussion of the benefits of training is related to the question of who pays for that training and, also, to implications for government policy in regard to fostering enterprise-based education and training. If there is a mismatch between payment and benefits (if there are externalities from the provision of training by firms), there may be a case for government intervention in the provision of training.

wage effects

Studies that measure the benefits of training for employees usually present results from longitudinal surveys. The wages of workers are measured before and after they receive training, and any change in wages is compared with the corresponding change in the wages of workers who did not receive training.

Identifying the effect of training on earnings is difficult. Workers who receive training have different characteristics (education, occupation, industry) from workers who do not. To the extent that these characteristics are measured, statistical adjustments can be made to remove their effects. Training is often so closely related to job promotion or job entry that it is all but impossible to separate the effect of training on earnings from the effects of job promotion and job entry. There are also likely to be unmeasured differences between workers who receive and who do not receive training (motivation, aptitude). Since workers judged more likely to benefit from training are more likely to receive training, it is difficult to generalise any estimates of wage effects to other workers.

Training, alternative pay systems and employee involvement are often correlated with productivity (Kling 1995) and with each other. At least some of any wage effect attributed to training may be due to the work practices that accompany the training rather than to the training itself. The wage effect of training cannot be disentangled from the work practices within which the training occurs. Employer-supported education and training often exists as an element within a wider matrix of human resource management policies, and it is these 'bundles' of policies that collectively produce results for the firm (Kling

1995; MacDuffie 1995; Ichniowski, Shaw & Prennushi 1997). Hence it can be misleading to examine the effect of training in isolation from these policies.

Any improvement in the productivity of workers owing to training is assumed to result in increased wages and may be expressed as either a wage effect (a percentage increase in wages) or (less frequently) as a rate of return (an interest rate that equates the flow of benefits and costs over time). Participation in enterprise-based training may also increase the occupational status of the worker, their likelihood of promotion, reduce their likelihood of quitting and reduce their probability of unemployment (Blundell et al. 1999).

Although much of economics assumes that wages reflect marginal productivity, that link is far from simple. Various 'institutional' explanations link wages to 'deferred compensation' (Lazear 1979); to reduced supervision costs (Lazear 1981); to reduced turnover costs (Salop & Salop 1976); to improved worker–employer matches over time (Jovanovic 1979); and to incentives to improve morale (Aklorof 1984). Other studies have addressed the wages–productivity link empirically and found it less than perfect (Medoff & Abraham 1981a, 1981b; Spitz 1991; Lazear 1999). Results that question the nexus between productivity and earnings pose serious problems for much of the literature that deals with the wage effects of training.

There are several summaries of the international literature that measure the *wage effects* of participation in enterprise-based training:

- Lynch (1994) concludes that the best estimates are that company-provided training in the United States increases wages from between four and 11 per cent and by similar amounts in the Netherlands, while those in the United Kingdom and Australia are slightly smaller.
- Bishop (1997) builds on an earlier review by Mincer (1989) and finds that studies of the wage effect of training in the United States have produced results that varied from negative effects to increases of 13 per cent, and averaged about seven or eight per cent.
- Blundell, Dearden and Meghir (1996) review six studies of enterprise-based training in Britain, the United States and Australia, some of which used more than one data source. Wage effects varied from two to 18 per cent and averaged about eight or nine per cent.
- Groot (1997) reviewed 26 studies that reported results from Britain, the United States and several European countries. In these studies wage effects varied between four and 20 per cent and averaged about ten per cent.
- The Organization for Economic and Co-operative Development (OECD 1999) provided estimates of the wage effects of formal training for seven OECD countries. The estimates are five per cent for Australia, 14 per cent for Canada, nil for France, eight per cent for Germany, 38 per cent for Italy, minus four per cent for the Netherlands, and 74 per cent for the

United Kingdom—although the analysis employed means that these values are not necessarily good summary measures of the overall relationship.

The often-substantial variation in the size of the wage effects of training on wages is due to differences in:

- the statistical techniques by which the results were obtained
- the characteristics of the workers being studied
- the types of training being examined

The following discussion focusses on the characteristics of the training and of the workers.

the characteristics of training

The size of any wage effect may vary with:

- *The mix of general and specific skills*

  The distinction between *general* and *specific* skills is fundamental to the discussion of enterprise-based education and training. Specific skills are of use only to a particular employer (such as knowledge about a particular project code system), while general skills are of use to many employers (such as familiarity with a widely used word-processing package). Wage effects should be greater for general skills because workers are in a better position to bargain.

- *The mix of on-the-job and off-the-job training*

  Off-the-job training is more likely to receive certification than on-the-job training. It is therefore likely to be better signalled to other employers and result in greater wage effects. The literature is broadly consistent with this expectation (Blundell, Dearden & Meghir 1996; Booth 1993; Bishop 1994; Tan et al. 1992), although there are some contrary findings (Lengermann 1996; Veum 1995). On-the-job and off-the-job training are often confounded with the length of the training and whether the training is general or specific. It may be unwise, therefore, to draw strong policy conclusions from such results.

- *The match between formal and informal training*

  The majority of training an employee receives is likely to be informal. To the extent that the measured formal training is accompanied by varying amounts of unmeasured informal training, wage effects are likely to be different.

- *Content*

  The content of the training influences the size of the wage effects. Bowers and Swaim (1992), for instance, found that the effect of participation in

literacy and numeracy courses was to reduce wages by five per cent, while computer training increased wages by four per cent, wages were six per cent higher for participants in other occupational skills training and 13 per cent higher for supervisory training. Other studies (Groot 1995; Bartel 1995; Kroeger & Rousse 1998) also found that wage effects varied with the content of the training program.

- *Timing of the training*

  Some studies show that the wage effect of training declines with time as the values of the skills depreciate (Blundell, Dearden & Meghir 1996; Mincer 1991), although this appears to vary with the length of training (Lengermann 1996).

- *Hours of training*

  It might be expected that longer courses produced greater wage effects (Blundell, Dearden & Meghir 1996), but there is at least one major study that failed to find much effect (Veum 1995).

- *Previous or current employer*

  Lynch (1994), in a review of several studies, concluded that workers in the United States did not gain from previous company-provided on-the-job formal training. She suggests that this may indicate that company training is highly firm-specific, or that when workers change jobs, they accept lower wages in return for learning new skills. On the other hand, Blundell, Dearden and Meghir (1996) and Parent (1999) found that the wage effect of enterprise-based training was similar whether it was undertaken with a previous employer or the current employer and interpret this to mean that employer-provided training courses provide relatively general skills.

- *Source of payment*

  Many studies suggest that wage effects from training are greater when paid for by the company than when paid for by the worker (Loewenstein & Spletzer 1998; Lengermann 1996; Bowers & Swaim 1992; Lynch 1994).

characteristics of workers

Workers who are already more advantaged in the labour market (managerial or professional, more highly educated, permanent, full time, on higher salaries) receive more training than workers who are less advantaged (operators, service workers, labourers, casual, part time, lower paid). This pattern raises questions about equity and efficiency: Do the different levels of training among categories of workers reflect barriers to training? (the rationing hypothesis) or do the differences simply result an economically efficient allocation of training? (the comparative advantage hypothesis).

Setting to one side a raft of caveats, the fundamental proposition is that if training is allocated efficiently, wage effects of training for different categories of workers should be similar. Groot, Hartog and Oosterbeek (1994) and Groot (1995) pose the counterfactual—what would happen to the wages of workers who received training if they had not received training? and what would happen to the wages of those who did not receive training if they had? The studies conclude that workers who received more training are those who benefit more from it in terms of wage increases.

On the other hand, there are several studies that show that workers with lower educational qualifications or with low social and economic status have higher wage effects from training but lower rates of participation (Bartel 1995; Blundell, Dearden & Meghir 1996; Arulampalam, Booth & Elias 1996). Although the OECD (1999) study concluded that their results showed that wage effects of training were higher for categories of workers with lower participation, their results were in fact quite mixed, especially for Australia. Bowers and Swaim (1992) and Krouger and Rousse (1998) both found low returns to remedial forms of training.

the returns to training

This section uses information about the wage effects of training to estimate rates of return. The focus is not on the estimates themselves—on whether they are right or wrong. Instead, the process illustrates some of the issues that should be considered when thinking about the returns to training.

The balance between the benefits and costs of training over time is termed the *return*. The value of training depends on the returns it generates. Economic theory suggests that enterprises and individuals invest in training up to the point where the marginal returns to additional training are similar to the economic returns that can be obtained from alternative investments.

Rates of return are expressed as a percentage value similar to an interest rate. There are various methods of calculating this value (and a literature on their merits). One approach is to find the compound interest rate that equates costs and benefits over the time during which benefits and costs occur—the internal rate of return.

Despite the importance of returns, the literature on enterprise training is almost devoid of estimates—mainly because of the difficulties in obtaining information about the costs of training (OECD 1999). Although workers rarely know the costs of their training, information about the hours of the training and the wages of the workers who undertake the training provide some indication of cost. The benefits of training used in the calculation of rates of return are also more complex than single point-in-time estimates—the total benefits are measured as a flow of benefits over a period of time.

In the absence of detailed empirical information about the costs and benefits of training, we can make some assumptions and calculate the resultant returns. In doing so, we move away from thinking about costs and benefits in terms of money. Instead of talking about dollars, the calculations are in terms of weeks of work—time is money.

Table 1 provides estimates of rates of return that flow from the combinations of several assumptions:

- the rate of depreciation of the benefits of training
- the number of weeks required for training
- the way in which the benefits of training are shared between workers and enterprises
- the ratio of the salary costs of workers while training to other costs of training
- the size of the wage effect

To explain the values in table 1, we focus initially on a particular entry. One cell in table 1 has been highlighted. It contains the entry 339—a rate of return of 339 per cent. The rate of return in this cell corresponds to a wage effect of eight per cent, a rate of depreciation of 20 per cent, a training period of one week, an equal sharing of benefits between employers and employees, and wage and non-wage training costs that are equal.

The benefits to the worker for this combination are 3.6 weeks in the first year (allow, say, 45 productive weeks in the year at a wage effect of 0.08). There are also benefits during the next four years. We assume linear depreciation at 20 per cent per annum. So, in the next four years there are benefits of 2.88, 2.16, 1.44 and 0.72 weeks, respectively. The total benefit is 10.8 weeks. In addition, however, we have assumed that the enterprise shares equally in the benefits of training (most industry training is paid for by the enterprise and the enterprise needs some incentive to provide training). The total benefit is therefore 21.6 weeks of labour.

The costs are substantially less. There is the one week of work while the worker is training and an equivalent amount in the costs of providing the training—total costs of two weeks. The costs, however, are all in the current year, while some of the benefits are in the future (and therefore less valuable).

table 1: rates of return implicit in wage-effects under various assumptions

depreciation . . .		20%			15%			10%		
wage effect (%) . . .		4	6	8	4	6	8	4	6	8
training of 1 week										
no employer share										
cost ratio	1:1	64	111	157	72	117	164	79	124	169
	1:2	32	64	96	40	72	103	48	79	109
	1:4	3	25	45	13	33	53	22	41	60
50/50 employee to employer share										
cost ratio	1:1	157	248	**339**	164	254	344	169	260	350
	1:2	96	157	219	103	163	224	109	169	229
	1:4	45	83	121	53	90	127	60	97	133
50/100 employee to employer share										
cost ratio	1:1	248	383	519	255	389	524	260	395	530
	1:2	157	248	339	164	254	344	169	259	350
	1:4	83	139	194	90	145	200	97	151	205
training of 2 weeks										
no employer share										
cost ratio	1:1	14	40	64	23	48	72	32	55	79
	1:2	-4	14	32	5	23	40	15	32	48
	1:4	-22	-8	3	-11	1	13	0	11	22
50/50 employee to employer share										
cost ratio	1:1	64	111	157	72	118	164	79	124	169
	1:2	32	64	96	40	72	103	48	79	109
	1:4	3	25	45	13	33	53	22	41	60
50/100 employee to employer share										
cost ratio	1:1	111	180	248	118	186	255	124	191	259
	1:2	64	111	157	72	118	164	79	124	169
	1:4	25	55	83	33	62	90	41	69	97
training of 4 weeks										
no employer share										
cost ratio	1:1	-15	1	14	-5	10	23	6	19	32
	1:2	-27	-15	-4	-16	0	5	-5	6	15
	1:4	-38	-29	-22	-27	-20	-11	-14	-7	0
50/50 employee to employer share										
cost ratio	1:1	14	40	64	23	48	72	32	55	79
	1:2	-4	14	32	5	23	40	15	32	48
	1:4	-22	-8	3	-11	-5	13	0	11	22
50/100 employee to employer share										
cost ratio	1:1	40	76	111	48	83	118	55	90	124
	1:2	14	40	64	23	48	72	32	55	79
	1:4	8	9	25	1	25	33	11	27	41

source: Long et al. 2000

The discount rate that equates costs and benefits is 339 per cent. This is an implausibly high return. Most enterprises would consider returns of about 20 per cent to be reasonable. Very high rates of return should not persist if the market economy is working effectively. Enterprises should simply invest more in training (because it is so profitable) until the marginal rate of return falls to a level similar to other investment opportunities.

There are several possible explanations for this extremely high estimate:

- There are barriers that prevent the provision of more training.
- There may be rapidly diminishing marginal returns to training.
- The assumptions underlying our estimates may be wrong.
- The estimates of wage effects may be too high.

The estimate of the rates of return is an average across the training activities of a range of workers—some episodes of training will have higher returns and some lower. Training provision should expand to a level where the *marginal* return—the return from the next additional training course—is about (say) 20 per cent. If this is the case, and the average is 339 per cent, then the marginal returns curve must slope downwards very steeply. Such a slope would imply that at the one end there were extremely high returns to some episodes of training and that at the other end there was little to be gained by increasing the provision of training.

Very different returns to training activities are possible. Training is a prerequisite for some forms of work—a feature that implies very high initial returns. The returns to training for other forms of work may be modest.

the assumptions

We begin by reviewing the assumptions that underlie the values in table 1:

- *Depreciation*

  Depreciation of skills occurs because of technological change, organisational change and job change (among other factors). Values corresponding to three levels of depreciation are provided in table 1—20 per cent, 15 per cent and ten per cent. The higher the rate of depreciation, the lower the total benefits from training and, hence, the lower the returns. For the highlighted cell with the value of 339 per cent, the corresponding cells have returns of 344 per cent for a depreciation rate of 15 per cent and 350 per cent for ten per cent depreciation. Lower depreciation corresponds to higher rates of return, but the effect is small—halving the rate of depreciation results in only a modest effect on the rate of return. This follows from the discounting procedure that weights early benefits more than later benefits.

There are few estimates of the actual rate of depreciation of skills. Mincer (1991) provides estimates of 12.5 per cent and four per cent from different data sources, and argues for the latter. Lengermann (1996) finds that for school-based and company training lasting more than four weeks there is little depreciation in the value of training. Other studies suggest that skills acquired through work-based training depreciate over a decade or more (Blundell et al. 1999). These estimates indicate that a linear depreciation rate of 20 per cent is conservative. Indeed, even ten per cent—the lowest depreciation rate in table 1—may well be consistent with the limited results available in the literature.

- *The number of weeks of training*

The longer the time spent in training, the greater the cost. Table 1 presents rates of return associated with three periods of training—training that takes a week, training that takes two weeks, and training that takes four weeks. Estimates of returns decline quite rapidly, as we assume that the benefits of training result from a greater initial investment. For instance, the values corresponding to the value in bold in table 1 are 339 per cent for one week, 157 per cent for two weeks, and 14 per cent for four weeks.

The training courses discussed in the literature are often longer than four weeks—but some are far shorter. The ABS reports that the mean length of a training course was 21 hours. The average recipient of training completed just under two courses. The hours of training, therefore, might be about a week (ABS 1997). As discussed above, longer training courses are often associated with higher wage effects. Fraser (1996) notes that the length of training courses in many European countries is often substantially greater than in Australia or the United States.

- *The costs ratio*

Costs are dependent on the length of the course. Training costs consist of both the wages of the worker and other costs of training provision. If non-wage-training costs are assumed proportional to wage costs, the issue is the size of the ratio of these wage and non-wage costs. Table 1 provides estimates calculated for three ratios of the wages to other costs of training—that non-wage costs are equal to wages costs, that they are twice as large, and that they are four times as large. The ABS training expenditure survey found that the ratio of the cost of the worker's salary while receiving training to non-training costs is about 1.15. This estimate is consistent with the results presented by Frazis, Gittleman and Joyce (1998b).

Workers may also contribute to costs of training by accepting lower wages in the expectation of higher wages later (Becker 1964). There is considerable evidence against this proposition (Long et al. 2000).

- *The division of benefits between the employer and employee*

  Wage-effects only measure the benefits of training for employees. Enterprises require an incentive to pay for training and must receive some benefit. Table 1 provides three assumptions about the size of the benefit—that there is no benefit, that the benefit for enterprises is equal to that of workers, and the benefit to enterprises is twice as large. The greater the proportion of benefits attributed to employers, the greater the total benefits from training, and the larger the rate of return.

  A study of United States production and turnover data by industry found that productivity increased at twice the rate of wages—implying that workers receive about half of the total productivity benefit of training (Blakemore & Hoffman 1988). Barron, Black and Loewenstein (1989), Barron, Black and Loewenstein (1993) and Bishop (1991), however, suggest that the effect of an hour of training on productivity growth is about five times as large as the effect on wages growth. In other words, their results indicate that the benefits of training are divided roughly 5:1 between employers and employees. Their results, however, are for new hires. It is likely that employers pay starting salaries above those of starting productivity in anticipation of such growth, which would mean that the benefits of training was more evenly distributed than the 5:1 ratio.

  Bartel (1995) argues for the assumption that employers and employees share the benefits evenly—an assumption she describes as conservative (that is, she believes that employers would typically receive more than half the benefits). She justifies this assumption by reference to the value-added to wage ratio—that for most companies this ratio is greater than one and in the area of training it implies that firms reap at least the equivalent of the total costs of training after recovering those costs. This is broadly consistent with the estimates provided in OECD (1998).

  The estimates in table 1 that assume an equal sharing of the benefits of training between employers and employees (the 50/50 category) are probably consistent with results in the literature and may err on the conservative side—employers may be able to appropriate a greater proportion of the benefits.

- *The wage effect*

  The wage effect is the major driver of the benefits of training that underlie the estimates of returns in table 1. The studies discussed earlier in this chapter are consistent with a wage effect of about eight per cent.

Given the above discussion, the following assumptions seem plausible:

- the average duration of training is about two weeks (perhaps slightly less)
- depreciation is about 15 per cent (possibly less)

- the benefit to enterprises is at least equal to that for workers
- wage and non-wage training costs are about equal

The three values that correspond to this scenario in table 1—for wage effects of four per cent, six per cent and eight per cent—are, respectively, 72 per cent, 118 per cent, and 164 per cent. These estimates seem implausibly high and suggest that the wage effects due to training commonly reported in the literature are too high, possibly because they fail to adequately control for other influences, or confound the effect of unmeasured informal training with formal training, or measure the cumulative effect of formal training over a number of years.

diminishing returns

The estimates of returns to training are average returns. It is marginal returns that count—the benefits that follow from an extra hour of training rather than the total benefits that follow from a week of training. If there are rapidly diminishing returns to training (the 41st hour of training produces much less benefit than the first hour, or the training of the 100th worker produces less benefit than the training of the first), then high average returns might be quite consistent with reasonable marginal returns. There would then be no evidence of under-provision of training.

Several studies suggest diminishing returns to training. Bishop (1991), for instance, reports rapid diminishing wage and productivity returns to additional training. A 1997 study (cited in CEDEFOP 1998) of 1000 French companies with 50 to 100 employees, which was conducted by the French National Institute for Economic and Social Studies, found that training resulted in increased productivity. The study found that too much training, however, could have a negative effect. When firms spent between five and six per cent of their wages and salaries on training, productivity started to decline.

Although further details were unavailable, the study suggests that diminishing returns to training at the level of the firm result in zero marginal returns only at relatively high levels of expenditure. Few firms worldwide would spend more than five per cent of their payroll on training. Once costs are taken into account, reasonable returns to training expenditure would cease at somewhat below this level.

The sometimes apparently high returns to training may be consistent with adequate levels of provision of training if returns diminish quickly and there is strong positive-selection of candidates for training—both of which may be true. Such evidence as there is, then, is consistent with diminishing returns to the expansion of training for those who already receive some training. The returns to additional training are less than the average returns. There is mixed evidence about the rate at which returns decline—in particular, the French study of large

corporations suggests that negative returns only commence at relatively high levels of expenditure.

There is also mixed evidence about the results of providing more extensive access to training—at the least, it should be expected that (in the absence of severe rationing) the returns to training for those who are not already in receipt of training will be lower than the returns for workers who receive training.

the adequacy of enterprise-based education and training

High returns to training is evidence that normal market processes provide less than the optimal levels of training. Training should be provided up to a level at which the marginal rate of return is similar to that from alternative forms of investment.

The above discussion of the returns to training dealt with aggregate estimates. As part of that discussion it was noted that both workers and enterprises benefit from the training. If, however, only enterprises pay for the training, they will fund that training only to a level that is optimal for them—a level that is socially not optimal.

The message of the literature on the financing of training is clear. If there is a disparity between the proportion of the costs of training paid by enterprises and workers and the proportion of benefits accruing to enterprises and workers, then enterprises will provide less than the socially optimal levels of training. Enterprises pay for the majority of training, but workers may receive between 50 per cent and 20 per cent of any benefits of training (where only the benefits accruing to workers and enterprises are considered) (Long et al. 2000).

Workers may pay for training indirectly. For instance, the ABS 1993 survey of training and education found that 20 per cent of in-house training courses were attended either totally outside working hours (10%) or partly outside working hours (10%). There is no indication of whether this was paid overtime, but the wording of the question leads to the suspicion that some portion was not. Hence workers may pay for training by sacrificing leisure time (Greenberg 1997). Similarly, one of the main reasons given for not training was lack of time while working (ABS 1998). Time for training might sometimes be bought at the cost of working harder. Further, if training is distributed within the workplace on the basis of talent, aptitude, enthusiasm and motivation, it may form part of an informal reward system within overarching industrial awards or enterprise agreements.

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showing that enterprise training pays: lessons from the literature

Janelle Moy

This chapter summarises and updates the report, *Analysing enterprise returns on training investment: Issues paper* (Moy & McDonald 2001). It focusses on what the literature has to say about measuring enterprise returns from training. This information is then used to identify key issues that need to be addressed to encourage increased evaluation of training benefits by enterprises. Methodological approaches suited to enterprise needs for practical and cost-effective evaluation practices are also identified, including a taxonomy of over 50 possible training outcome indicators.

introduction

RECENT PUBLICATIONS HIGHLIGHT the importance of demonstrating the benefits, or returns, to enterprises resulting from investment in training:

> *Measuring the return on investment (ROI) in training and development has consistently earned a place among the critical issues in the Human Resource Development (HRD) field. The topic appears routinely on conference agendas and at professional meetings. Journals and newsletters regularly embrace the concept with increasing print space . . . Even top executives have stepped up their appetite for ROI information.* (Phillips 1997, p.1)

Such studies are considered critical for a number of reasons. First, these studies would enable training practitioners to justify training expenditure as an investment, rather than a cost and market their services more effectively to enterprise decision-makers, especially during economic downturns and organisational restructuring (Phillips 1997; Catts et al. 1996; Mitchell 1994; Schneider, Monetta & Wright 1992). Second, they would inform the routine decisions of managers by demonstrating the worth of training (Beaton & Richards 1997; Carnevale & Schulz 1990).

Beyond the individual enterprise, authors such as Billett (1998), Davidson et al. (1997), Billett and Cooper (1997) and Catts et al. (1996) indicate that establishing a body of Australian evidence demonstrating the returns to

enterprises may encourage increased enterprise investment in training and also assist in evaluating public policy on training.

Despite these arguments, studies of return on investment (ROI) in training remain 'more praised that practised' (Queensland Training Officers' Society 1994, p.10, citing Birdsall 1987), while Billett notes: 'Significantly, government appears more interested in cost–benefit analysis (CBA) than enterprises' (Billett 1998, p.395).

These views are shared by Sadler-Smith, Down and Field (1999) who comment that training evaluation in the United Kingdom is also 'the subject of much rhetoric, but considerable practical neglect' (p.369). Such a situation is hardly surprising when many of the available studies, while initially tempting to the practitioner because they appear to provide models and approaches, actually require considerable resources and frequently result in more questions than solutions (Sadler-Smith, Down & Field 1999; Mitchell 1994; Carnevale & Schulz 1990).

This chapter does not revisit all of the terrain covered in recent reviews of the literature by Billett and Cooper (1997), OTFE (Office of Training and Further Education), Victoria (1998) and Employment Services Unit, Deakin University (1997). Significantly, all three studies conclude that available quantitative and qualitative evidence indicates that training appears to have a beneficial impact within enterprises. Following a review of United States return on training investment (ROTI) studies, Bartel (2000) also found that returns to employers appeared more significant than previously believed. Instead, this chapter commences from what we currently know about investment in training by enterprises—that research evidence suggests that enterprise investment in training results in returns to the enterprise, but many enterprises appear unwilling, unable, or uninterested in evaluating these returns using the models and approaches advocated in the literature.

The literature is reviewed to identify the definitional, conceptual and practical issues that need to be considered by those wishing to implement or improve approaches to evaluating returns to enterprises from investment in training.

conceptual and definitional issues

'training' or 'learning'?

Ambiguity and uncertainty surround the use of the term 'training' by governments and enterprises (DTEC NSW 1997; Sloan 1994). Traditional definitions of training, such as the Australian Bureau of Statistics (ABS) definition, focus on formal, structured programs, with stated intents and processes, which may or may not be credentialled. Sloan (1994), Misko et al. (1996), Billett and Cooper (1997) and Johanson (1998) argue that this narrow

definition under-represents and undervalues the range of enterprise training and learning activities, of which structured training is just one component. To address this issue, a broad definition of training is required, which includes 'all forms of skill formation activity relevant to the operation of the enterprise. It may include formal and informal and on-site and off-site training and education' (Hayton et al. 1996, p.6).

Such an approach appears desirable within the context of learning organisations and enterprise efforts to find and use 'the most efficient ways of achieving competitiveness-enhancing competence' (Drake 1995, p.3, see also Bassi & van Buren 1998; Phillips 1997). This shift is also demonstrated by the reorientation from formal training provision to performance consultancy in which work performance and returns to organisations are improved through holistic, multi-faceted initiatives, rather than isolated training activities (Robinson & Robinson 1995, 1998; Stolovitch & Maurice 1998). Consequently, a broad definition of training, which captures and integrates all forms of organisational training and learning, is advocated and applied in this chapter.

should the term 'return on investment' be used?

Since the early 1990s, ROI and cost–benefit studies which demonstrate the bottom-line contribution of training have received increased attention in the literature and promotion as 'the ultimate level of evaluation' (Phillips 1991, p.329). These approaches have resulted from the inability of conventional accounting systems to provide adequate data for decision-making about training resource use (see Carnevale & Schulz 1990, p.S-4 and Plott, 1998) and the tendency for training to be seen as an annual cost item, rather than an investment (Employment Services, Deakin University 1997).

Phillips (1991) explains that the term *return on investment* originates from the finance and accounting field. His definition and formula for calculating ROI is provided in box 1.

Despite the use of the term ROI in the training literature and various evaluation models, Mitchell (1994) notes that a set of agreed procedures does not exist for ROI training evaluation studies. Phillips himself cautions about the use of the accounting term ROI and the limitations of its application within training contexts:

> *Finance and accounting personnel may actually take issue with calculations involving the return on investment for efforts such as an HRD program. Nevertheless, the expression is fairly common and conveys an adequate meaning of financial evaluation. Some professionals suggest that a more appropriate name is return on training (ROT), or simply return on human resource development.*
> (Phillips 1991, p.338)

box 1: Phillips' (1997) return on investment formula

Phillips calculated return on investment using program benefits and costs. The benefit/cost ratio (BCR) is the program benefits divided by cost:

$$BCR = \frac{\text{program benefits}}{\text{program costs}}$$

He suggests that the most appropriate formula for evaluating training investment is net program benefits divided by cost. The ratio is usually expressed as a percentage when the fractional values are multiplied by 100:

$$ROI\ (\%) = \frac{\text{net program benefits}}{\text{program costs}} \times 100$$

The net benefits are the program benefits minus program costs. The ROI value is related to the BCR by a factor of one. Consequently, a BCR of 22.45 is the same as an ROI value of 145%. Applied to training, the investment part of the formula refers to capital expenditure for equipment, materials and facilities, plus initial development or production costs.

A return on a training investment of 50% indicates that costs were recovered and an additional 50% of the costs are reported as earnings. A training investment of 150% indicates that the costs were recovered and an additional 1.5 multiplied by the costs is captured as earnings.

As an example, Phillips notes the ROI achieved by one company for an 18-week literacy program. The program cost $38 233 and benefits (productivity and quality improvements) were valued at $321 600. The ROI for this program was:

$$ROI\ (\%) = \frac{\$321\ 600 - \$38\ 233}{\$38\ 233} \times 100 = 741\%$$

For each dollar invested, the company received $7.41 in return, after program costs had been fully recovered.

This approach to calculating ROI is advocated by Phillips because the same formula and concepts are used for other business investment decisions. He advocates an ROI minimum of 25% for training initiatives.

source: Phillips 1997, pp.33, 152–154

Consideration of definitional and measurement issues suggests that a term other than ROI should be used in contexts where training is evaluated to identify a range of qualitative and quantitative benefits produced by investing in the learning and development of employees. Use of a term such as *return on training investment* appears preferable to using (or misusing) *return on investment*, which has a narrower, quantitative meaning within business contexts.

links between training, performance and profits: the issue of causation

While acknowledging positive associations between training and business outcomes, Sloan (1994), Shackleton (1993) and Employment Services, Deakin University (1997) raise the issue of causation when reviewing research on the impact of training on enterprise performance. Shackleton (1993) contends that:

> *Correlation does not imply causation, and there is a distinct possibility that the underlying cause of both high commitment to training and higher productivity may be different managerial cultures.* (Shackleton 1993, p.36)

A lack of attention to causal relationships in training evaluation models is also raised by Sadler-Smith, Down and Field (1999), while Guest (1997) indicates that establishing causal links with organisational performance is an issue for human resource management (HRM) generally.

When undertaking ROTI studies, both researchers and practitioners need to consider ways of addressing the issue of causation by integrating strategies to provide evidence of direct relationships between training and enterprise performance. For example, both Catts et al. (1996) and Mitchell (1994) recommend that business indicators, such as measures of productivity, should be used in conjunction with other data sources, such as internal customer satisfaction with training and external customer satisfaction with service provision.

practical issues

who undertakes ROI or ROTI research?

Based on a focus group with Australian HRD professionals, Kostos (2000) notes that the implementation of training measurement models requires a significant financial investment and commitment, especially from senior managers. Most published Australian studies (Pearson 1996; Catts et al. 1996; Misko et al. 1996) were completed by researchers. Other studies have involved collaboration between researchers and enterprises (Davidson et al. 1997; Queensland Training Officers' Society 1994). Where enterprise research is documented, it usually involves large enterprises with human resource functions (Phillips 1994;

Mitchell 1994; Bartel 1995; Schneider, Monetta & Wright 1992), suggesting that current models advocated in the literature are not particularly relevant or appropriate to the needs and priorities of small- and medium-sized enterprises (SMEs). This view is confirmed by the findings of European research on training evaluation practices by Sadler-Smith, Down and Field (1999) and Field (1999). They report that training evaluation practices are unlikely to improve, especially amongst SMEs, without the development and promotion of enterprise-friendly approaches, together with provision of external evaluation support.

designing and undertaking ROTI studies

The difficulties and complexities of undertaking ROTI studies are highlighted repeatedly by researchers and human resources practitioners. Challenges include:

- difficulties in designing experimental studies involving control groups, which may be more rigorous in an academic sense, but are rare in practice (OTFE 1998)
- problems of timing and resources, including the prospect of benefits accruing after the evaluation period (Mitchell 1994; Selby Smith 1996; Shackleton 1993)
- data access and collection issues, including sample selection, access to data (such as personnel records which may be confidential) and access to data held by other functional units within the enterprise (Mitchell 1994; Queensland Training Officers' Society 1994)
- the lack of practical, standardised approaches for evaluating ROTI (Sadler-Smith, Down & Field 1999; Bassi & van Buren 1998; Johanson 1998)

selecting output measures and analysing and interpreting results

Of all the issues surrounding ROTI, measurement issues are most frequently identified as a disincentive for ROTI evaluation, especially:

- the impracticality or impossibility of controlling for all variables (Mitchell 1994; Billett 1998)
- difficulties in isolating the benefits of training and quantifying all costs and benefits (OTFE 1998)
- naive efforts to apply quantitative approaches, such as ROI, in contexts which are unrealistic and impractical (Phillips 1991, 1997)
- differences in expectations about what can be measured (McDonald 1995)

Catts et al. (1996) caution that 'business indicators, especially over the medium term, are affected by many factors and training cannot be isolated as a factor, at least in single study research' (p.78).

To assist in identifying the benefits derived from training and establishing causal relationships, Catts et al. (1996) recommend that business indicators, such as measures of productivity, be used in conjunction with other data sources. Mitchell (1994) also advises against the use of CBA in isolation from supporting data:

> *An HRD approach to calculating ROI must acknowledge that a cost–benefit model alone cannot measure and assess the value of training. Many phenomena connected with training and organisations can leave the highest quality training disconnected from the planned outcomes. A cost–benefit study improperly applied might show success when there is none or show failure when successful outcomes are still developing.* (Mitchell 1994, p.201)

review of methodological approaches

This section seeks to consolidate methodologies and findings of relevance to future enterprise-driven ROTI research. Key theoretical models and approaches are identified, together with recent Australian and overseas research on ROTI. Information is presented in summary form in tables, then discussed.

theoretical models and approaches

Table 1 provides an overview of literature that presents advice on 'how to' conduct various types of training measurement and evaluation studies.

Davidson et al. (1997) provide advice for Australian enterprises on how to conduct ROI in training studies. Four stages of training evaluation are presented: budget evaluation; skills evaluation; project evaluation; and strategic evaluation. In addition, six groups of evaluation techniques are presented and related to Kirkpatrick's[1] four levels of evaluation. Each evaluation technique is presented, together with enterprise examples.

The Strategic Training Evaluation Model (STEM) (Unger & Rutter 1997) provides a six-step process designed to systematically address the information needs of stakeholders by aligning training needs with business needs and enabling the evaluation of the contribution of training to the business. At each step of the process, a key question assists in generating an important evaluation outcome and ensuring that stakeholder information needs, business and training needs and ROI for training priorities are addressed. The six steps are: Environmental Scan; Identify Needs; Training Strategy; Return on Investment (ROI) Indicators; Return on Investment (ROI) Report; and Review. In this model ROI encompasses 'the outcomes of training that define success or failure to key stakeholders' (Unger & Rutter 1997, p.520), rather than the narrower quantitative definition applied by Phillips (1997).

table 1: literature on how to evaluate enterprise returns on training

author/s	overview of approach
Davidson et al. (1997)	Presents enterprise frameworks and techniques to assist Australian enterprises in evaluating returns from their investment in training.
Unger and Rutter (1997)	Strategic Training Evaluation Model (STEM).
Beaton and Richards (1997)	A guide and toolkit developed to promote an understanding of the benefits to United Kingdom organisations of investing in training.
Field (1999)	Reports on the Promoting Added Value through the Evaluation of Training (PAVE) Evaluation Resource Pack.
Phillips (1997)	Presents an ROI process that focusses on measurement and the assignment of monetary values to training costs and benefits, together with general advice on ROI and the use of qualitative approaches.
Williams (1996)	A short but comprehensive article focussing on ROTI measurement issues from a practitioner perspective.
Kirkpatrick (1994)	Provides information, tools and examples based on the application of the four-level Kirkpatrick Model.
Carnevale and Schulz (1990)	Two evaluation frameworks are presented: the Consensus Accounting Model and the Kirkpatrick Model, together with a range of practical approaches used by large, innovative United States companies.
Leimbach (1994)	Outlines an approach called Utility Analysis, marketed by Wilson Learning.
Drake (1995)	Advocates the identification and development of 'a spectrum of outcome measures' (p.24) from immediate to more distant outcomes.
Shelton and Alliger (1993)	Presents a series of steps for calculating enterprise returns on training investment. They focus on identifying, obtaining, organising, and analysing already available data.

Sponsored by Investors in People UK and the Institute of Personnel and Development, Beaton and Richards (1997) developed a three-part resource to provide advice, guidance and tools for trainers, training managers, line managers and consultants. Section 1 overviews issues associated with training, training evaluation and the assessment of training benefits. Section 2 provides a toolkit including advice on training and evaluation, together with guidance on a range of methodologies, clustered using Kirkpatrick's[1] four evaluation levels. However, the toolkit focusses on Level 3: Measuring the Effect on Individual Work Performance and Level 4: Evaluating the Impact on Organisational Performance. Users are advised to select and use only those approaches that suit

their organisation. Section 3 provides templates of some of the tools for ready use by enterprises.

The Promoting Added Value through the Evaluation of Training (PAVE) Evaluation Resource Pack was developed and piloted as part of a European Union project in 1998–2000 (Field 1999). It provides: background theory; various contexts and frameworks for organisations to consider; reflective questions to guide employer selection of appropriate evaluation methodologies; evaluation tools and examples of their application; and an annotated bibliography. The initial target audience for the resource pack is intermediaries (such as government training agencies, chambers of commerce, universities and training providers), together with human resource practitioners in larger organisations. Field indicates that, without the support of intermediary organisations, small- and medium-sized organisations that lack a training culture and structure are unlikely to use the pack.

Phillips' (1997) book presents 'a proven ROI process based on almost 20 years of development and refinement' (p.xiv) and incorporates much of his earlier work, including Phillips (1991). His ROI process is overviewed in a model, which is complemented by comprehensive advice and a detailed case study to explain the model. Phillips suggests that his ROI process 'adds a fifth level to the four levels of evaluation' (p.9) identified by Kirkpatrick. Unlike Beaton and Richards (1997), he advocates the development of evaluation plans that address all five levels of evaluation. He also recommends that ROI studies be conducted only for programs that are based on a comprehensive needs assessment. Consequently, Phillips' model appears more applicable to large, well-resourced organisations. However, other aspects of the advice he provides, such as taxonomies for identifying and using hard and soft data, converting data to monetary benefits, and calculating program costs and returns, may be applied more widely.

Williams (1996) focusses on providing practitioners with advice and reassurance on measuring training results. The article highlights the importance of linking the measurement of training effectiveness with business goals and outlines the concept of using a 'stairstep connection' (p.45), or questions that establish the pathway between training and business results. Questions are identified to assist practitioners in making connections between training and results and in grappling with measurement issues within their organisations.

As noted earlier, the Kirkpatrick Model has been influential in training evaluation for some time. Kirkpatrick (1994) provides detailed information on the model, together with a range of examples and sample tools for evaluating training at each of the four levels. Sample interview schedules, questionnaires, gap analysis tools and performance appraisal instruments are a useful resource for researchers and practitioners planning ROTI studies. The work of Carnevale and Schulz (1990) also remains relevant and useful. An overview of theoretical ROI models is provided, together with examples of practical and innovative

approaches adopted by a number of enterprises. Examples of enterprise approaches for assessing returns from training include:

- behavioural change evident via annual employee opinion surveys (used at Johnson & Johnson)
- designing all training to address five key operational objectives: zero production defects; reduced total cycle time; integration of production and manufacturing; becoming a customer-driven company; and developing a participative management culture (used at Motorola)
- production units per hour per employee (used at Polaroid)

Leimbach (1994) promotes an approach to ROI called Utility Analysis, in which training costs and benefits are identified and quantified. Identified benefits focus on the number of people trained, the duration of the training effect and performance differences owing to training. In contrast, Drake (1995) questions the appropriateness of some of the narrower, more qualitative approaches to ROI, favouring a reconceptualisation which captures evaluative data on the full range of learning and performance-enhancing activities used within enterprises.

Finally, Shelton and Alliger (1993) advocate and explain a practical approach to calculating ROI. They suggest that enterprises should base their analysis on the use of existing data. Suggested data include: accidents rates; absenteeism; number of processing errors; units produced; unit and operating costs; and frequency of safety violations.

recent Australian and international research studies

Table 2 identifies recent research studies that have explored issues associated with evaluating the return (or benefits) from enterprise investment in training. Within the table, Australian and overseas studies are distinguished.

The first three studies included in table 2 focus on efforts to determine ROI in training within single enterprises. Schneider, Monetta and Wright (1992) present a seven-step process to predict and measure the ROI on training, based on an approach used to demonstrate the cost effectiveness of supervisory and management development training at a United States Naval Ordnance Station. The approach is promoted as relevant for highly paid employees and requires the use of a comprehensive, valid and reliable needs survey. Pine and Tingley (1993) report the application of the Kirkpatrick Model in evaluating a two-day team-building course for intact groups comprising maintenance teams from one enterprise. Experimental and control groups were used to determine investment return focussing on three measures: decreased down time for equipment; response time to service calls and completion time for equipment repair. This study has considerable potential for replication in Australian enterprises. Bartel (1995) used the personnel database for almost 4000 professional employees at a

large manufacturing company to demonstrate the positive impact of training on job performance and wage growth during the period 1986–90.

table 2: recent studies of enterprise returns from investment in training

author/s	study overview
overseas studies	
Schneider, Monetta and Wright (1992)	Presents a seven-step process to predict and measure the ROI on supervisory and management training.
Pine and Tingley (1993)	Provides detailed information on the application of the Kirkpatrick Model to evaluate a two-day team-building course for maintenance teams from one enterprise.
Bartel (1995)	Demonstrates how the personnel records from an enterprise database can be used to demonstrate the positive impact of training on job performance and wage growth.
Stolovitch and Maurice (1998)	Outlines a training ROI model and details its application in a banking case study.
Mitchell (1994)	Reports on a study by the Human Resource Development Group at the US Office of Personnel Management to determine whether ROI was a viable method for measuring training impact.
National Association of Manufacturers (1994)	Identifies tangible returns from investment in training reported by enterprises.
Phillips (1994)	Presents 18 case studies of ROI practices in United States organisations.
Hollenbeck (1996)	Provides a Benefit–Cost Framework and examples for assessing workplace literacy training.
Schriver and Giles (1999)	Compares the ROI for web-based intranet training delivery of courses for three United States nuclear plants with traditional delivery.
Sadler-Smith, Down and Field (1999)	Research on the evaluation practices of 394 organisations in England and Wales.
Field (1999)	Research on the evaluation practices of 1645 European firms.
Bassi and van Buren (1998)	Reports the results of the American Society for Training and Development Human Performance Practices Survey, noting the links between enterprise performance and its workplace learning and development practices. Six organisational performance measures are used to evaluate enterprise performance over time and when compared with business competitors.

table 2: recent studies of enterprise returns from investment in training (cont.)

author/s	study overview
Australian studies	
Queensland Training Officers' Society (1994)	Steven Billett worked with training practitioners from seven large organisations to develop and use a research tool in this study on the costs and benefits of training at the enterprise level.
Pearson (1996)	Provides qualitative and quantitative evidence of the benefits of workplace language and literacy training.
Catts et al. (1996)	Replicates aspects of the Pine and Tingley (1993) study in research on ROI to four small retailing enterprises. Identifies mediating factors that may influence potential benefits, plus limitations of ROI-type studies.
Misko et al. (1996)	Study included research on the costs and benefits of work-based training. While companies did not evaluate training formally, most companies did judge the effectiveness of their training. Identifies the benefits noted most frequently by enterprises.
(Department of Training and Education Coordination) DTEC NSW (1997)	Documents the approaches used by 59 enterprises to identify returns on enterprise investment on training. Six qualitative and quantitative measures are identified as those used most frequently.
Doucouliagos and Sgro (2000)	Provides case studies from a range of Australian organisations and industries to demonstrate practical training evaluation processes and how the net gains resulting from training programs may be quantified. Demonstrates the use of time series data and matched pairs.
Blandy et al. (2000)	Collected pilot survey and case study data, including replication of the research designs used in three significant overseas surveys, to test research designs that could be used to measure and assess productivity and profitability benefits resulting from investment in training by Australian enterprises. Approaches include: 'matched plants', effects on enterprise productivity and profitability from training newly recruited employees; effects on enterprise profitability from the quality and quantity of training provision; and application of the enterprise frameworks provided in Davidson et al. (1997).
Maglen, Hopkins and Burke (2000)	Applied a method used by Prais and others in inter-country comparisons of enterprise training expenditure with labour productivity, across clusters of enterprises providing similar products or services. A series of case studies were completed in each of four industries. Also investigated whether the relationship was enhanced by the 'bundling' of mutually reinforcing human resource practices, including training, and related enterprise 'dynamics'.

In addition to examining the role of training in performance improvement, Stolovitch and Maurice (1998) propose a model for calculating ROI for both tangible and intangible benefits, using a range of innovative data sources and methods. The application of the model in evaluating a training program for 320 account managers employed by one bank is explained. The model has seven main steps:

- calculate potential for improved performance
- calculate estimated training costs
- verify the worth of the training by comparing costs against potential outcomes
- conduct training
- calculate the true cost of training
- calculate organisational ROI
- calculate individual increased value of human capital

Studies by Mitchell (1994), National Association of Manufacturers (1994) and Hollenbeck (1996) demonstrate some of the more complex issues confronting those undertaking ROI or ROTI studies. Mitchell (1994) provides a frank account of a study by the Human Resource Development Group at the US Office of Personnel Management. Three pilot projects were initiated to study whether ROI was a viable method for measuring training impact. The study highlights the 'numerous hindrances and sobering realities' (Mitchell 1994, p.215) of attempting ROI studies. As a result, it provides a valuable introduction for those considering an ROI study within a large enterprise and counterbalances some of the more unquestioningly positive accounts evident in the literature. Hollenbeck (1996) also reflects on some of the difficulties of isolating the contribution of training to employee productivity.

While the National Association of Manufacturers (1994) found little evidence of formal training evaluation, measures relevant to enterprises were being used to identify tangible returns from investment in training. Those measures included: reduced scrap rates; reduced time cycles; reduced defect rates; decreased workers' compensation costs; reduced accident rates; and higher morale.

Phillips (1994) provides 18 enterprise case studies, from a range of industries and environments, to demonstrate the range of approaches used and issues addressed by the case study organisations. All demonstrate impressive results, with returns on training investment from 150% to 2000%, together with other documented benefits. As shown in Schriver and Giles (1999), evaluation strategies can also be used to demonstrate improved returns from the introduction of new training delivery approaches. Reported benefits of web-based intranet delivery at three United States nuclear plants, compared with

more traditional training delivery, included total net savings of $1.5 million, reduced employee travelling time and reduced training time.

Sadler-Smith, Down and Field (1999) present findings of a study on how and why 394 organisations, regarded as more innovative and sophisticated in their training and evaluation practices than most English and Welsh organisations, actually evaluated their training. Most of the organisations obtained evaluative data informally or through the use of questionnaires. The information was more likely to be used for training, employee development and operational decision-making than for strategic or ROI decisions, especially amongst SMEs. Significantly, less than one-third of enterprises assessed the impact of training on company performance. Similar results are evident in the study of 1645 European firms reported by Field (1999). This project resulted in the development and piloting of the PAVE Evaluation Resource Pack (see table 1) to assist enterprises to improve their training evaluation practices.

Finally, Bassi and van Buren (1998) report on the state of learning and development practice within the United States, based on results of the American Society for Training and Development Human Performance Practices Survey of 500 private sector firms with over 50 employees and complementary data sources. This study emphasises the inter-relationship between learning and development practices and other 'coherent and reinforcing' (Bassi & van Buren 1998, p.37) enterprise practices. The study found a 'solid relationship' (p.25) exists between a company's performance and its workplace learning and development practices. The study used six clusters of human resource practices (or indexes) and questionnaire items to obtain respondent perceptions on six organisational performance measures, over time and when compared with business competitors. The six performance measures were: retention of essential employees; employee satisfaction; quality of products and services; customer satisfaction; and sales and profitability.

A number of additional United States studies (Gollan 1997; Ernst & Young 1995; Osterman 1994) are not identified in table 2 but also reported positive links between enterprise investment in training and various business indicators. For example, Osterman surveyed 694 United States businesses undergoing workplace transformation to implement high road business strategies, where competition was based on quality, variety and service, rather than price. Training was identified as a more significant factor than other human resource practices in achieving workplace transformation.

All of the Australian studies included in table 2 were undertaken by external researchers involved in multi-enterprise studies. Queensland Training Officers' Society (1994) reports the development and use of a tool to determine the costs and benefits of training to seven large organisations. Four main elements were identified: production, staff, equipment and work practice. These elements were used to cluster 38 benefits from training. While the research tool appeared to have great promise, the results of the research assist in explaining why training

is valued and sponsored within enterprises, rather than providing evidence of direct bottom line profit from training investment. This conclusion aligns with the Hayton et al. (1996) study of enterprise training, which found that training is viewed primarily as supporting and facilitating strategic organisational shifts (such as new work practices, quality initiatives, team approaches and improved customer service) as links with the bottom line are indirect and may not be measurable.

In a study of the benefits of workplace language and literacy training Pearson (1996) surveyed 30 enterprises and completed case studies of nine enterprises. Questionnaires used in this study cluster 42 benefits into five categories: direct cost savings; access to and acceptability of further training; participation in teams and meetings; promotion and job flexibility; the value of training (other, less tangible, personal and interpersonal benefits). The study provides qualitative and quantitative evidence of the value of training, including a small number of quantitative examples that may be applied by enterprises in other contexts.

Catts et al. (1996) sought to replicate aspects of the Pine and Tingley (1993) study, such as applying and linking the four levels of evaluation proposed by Kirkpatrick, to evaluate training undertaken by four small retailing enterprises in Queensland. Catts et al. identified mediating factors which impact on the effectiveness of workplace training and note various limitations of ROI-type studies, especially the dangers of using measures of productivity benefits in isolation from other primary evidence on the effectiveness of training.

Misko et al. (1996) found that while many companies did not evaluate training formally, most judged the effectiveness of their training through improvements in work performance and feedback from internal and external clients. Benefits identified most frequently by enterprises surveyed were: improvements in productivity; employer–employee relationships; safety; technical competence and quality; and cost efficiency and effectiveness. Similar findings are evident in DTEC (1997), which found that the returns, or benefits, of most interest to enterprises were: employee perceptions; informal observation of employee performance; impact on customer service; impact on quality assurance statistics; impact on occupational health and safety statistics; review (rather than measurement) of training to evaluate the contribution to business performance indicators.

Miller (1996) also outlines an approach in which practitioners identify key performance indicators that demonstrate change and success over time. The indicators identified by Miller for training and education at the Ford Motor Company were: customer satisfaction levels; productivity improvement; absenteeism; achievement of quality rating; quality awards; and training awards.

The last three studies included in table 2 were funded by the Australian National Training Authority (ANTA) as part of the project, Enterprise return on

a training investment in the Australian context. These studies were commissioned to investigate methodological approaches that could be used to demonstrate returns to Australian enterprises from investment in training. Further information on these studies is provided in later chapters of this book.

looking beyond the training literature for relevant models and lessons

the balanced scorecard

Many of the studies discussed in the previous section identify key training outcome indicators or measures used by enterprises to assess the returns resulting from investment in training. Others highlight the importance of focussing on a small number of indicators identified as critical to enterprise decision-makers. These approaches exhibit some similarities with the Balanced Scorecard approach developed by Kaplan and Norton (1992, 1996).

As current enterprise operating environments are characterised by a need for continuous improvement, innovation and competitive advantage, Kaplan and Norton argue that executives require business performance measurement systems that include, but extend beyond, traditional financial accounting models such as ROI. They identify a need for a more comprehensive valuation of company assets which includes intangible and intellectual assets and customer satisfaction.

Based on research with 12 companies 'at the leading edge of performance measurement' (Kaplan & Norton 1992, p.71), they initially devised a measurement system to provide senior executives with a rapid, but comprehensive, assessment of the current and future performance of their business. The Balanced Scorecard provides holistic information from four perspectives and answers to four key questions:

- Financial Perspective: How do we look to our shareholders?
- Customer Perspective: How do customers see us?
- Internal Business Perspective: What must we excel at?
- Innovation and Learning Perspective: Can we continue to improve and create value?

To minimise information overload, companies select a limited number of goals and critical measures for each perspective. For example, the customer perspective may include measures such as on-time delivery, percentage of sales from new products and defect rates to evaluate the goals of responsive supply, new products and quality. A single report is collated to encourage executives to consider and balance improvements, so that results in one area are not achieved at the expense of another area, or long-term results are not sacrificed to achieve short-term results.

Aspects of the Balanced Scorecard approach, such as the linking of training initiatives with business goals and the selection and use of a small number of critical measures, appear readily applicable to ROTI studies. However, the application of the four perspectives used to assess the overall performance of a company appears less relevant to the evaluation of specific training interventions, which may focus on only one or two of those perspectives. Given similar themes in the training evaluation literature, it is also interesting to note the authors' frustration that amongst the companies implementing the Balanced Scorecard concept, measurement approaches for the learning and growth perspective were frequently missing or poorly linked with strategic objectives (Kaplan & Norton 1996, pp.144–145, 231–232).

human resource accounting concepts

The need to address the importance of investment in training and other intangible enterprise activities which impact on enterprise growth and productivity has also been promoted by the Organization for Economic Co-operation and Development (OECD) (Johanson 1998). While noting that 'the importance of intangibles exceeds the current ability to recognise and measure them' (p.47) and the limited progress made during the last 30 years, the author provides examples of practical applications of Human Resource Accounting (HRA) and HRCA (which comprises HRA and utility analysis), used mainly by Swedish companies to evaluate organisational learning. However, while the application of HRA was viewed positively by case study participants as a means of including information on human resource investment in company financial statements, Johanson indicates that 'the integration of HRCA in the management control process seems to fade away' (p.52) owing to management ambivalence towards HRCA. Johanson argues that little will be achieved until more is known about the way intangible factors and processes are recognised, measured, reported and valued within companies and externally, by capital markets.

maximising enterprise ROTI

factors that enhance ROTI

Stolovitch and Maurice (1998) claim that less than 20 per cent of training is actually transferred to workplace performance. Recent studies (Maglen, Hopkins & Burke 2000; Bassi & van Buren 1998; Barrett & Hovels 1998; Billett & Cooper 1997; Guest 1997; Pfeffer 1998; Ernst & Young 1995 and Osterman 1994) consistently highlight the need to consider training decisions and practices as a unified cluster of activities in a highly inter-related set of enterprise activities. As a result of a review of over 100 papers on the business practices of thousands of enterprises, Ernst and Young (1995) found that the economic benefits to companies were greatest when innovations in management practices were

integrated with employee training and empowerment programs. Similarly, all 59 interviewees in the DTEC (1997) study indicated that:

> *the productivity benefits of training would be enhanced, and in many cases can only be achieved, when training is integrated with other aspects of their organisations and/or when the organisations made use of other sustainable competitive advantages.* (p.51)

In summary, authors including Maglen, Hopkins and Burke (2000), Bassi and van Buren (1998), Curtain (1998), Robinson and Robinson (1995, 1998), Lester (1998), Gollan (1997), DTEC (1997), Kaplan and Norton (1996) and Smith (1993), advise that enterprise returns on training are greatest when training provision aligns with:

- enterprise approaches to technology, given the interdependence between training and technological change
- reinforcing human resource policies and practices (especially incentives such as promotion, profit sharing, team-based pay, performance pay and bonuses), together with recruitment policies and practices and feedback systems
- work organisation and work practices, such as the scope of the workers' activities, their decision-making roles, and access to accurate and timely information
- corporate objectives and operating requirements, including production strategies
- low employee turnover
- senior management commitment, including the business philosophy, skills and experience of owners/managers
- supervisory support and involvement

Blandy et al. (2000) also suggest that enterprise returns from training can be very high for training that is highly specific, completed rapidly and is related to the introduction of new work practices or technology.

factors that inhibit ROTI

Stolovitch and Maurice (1998) also highlight the waste of training expenditure that may result from the inappropriate selection of training as a solution:

> *training is often the cure of choice for a range of performance gaps whose causes have little if anything to do with skill/knowledge deficiencies. Its implementation, consequently, yields little to no effective results. It follows, then, that there should be no expectations of a positive ROI from training.*
>
> (Stolovitch & Maurice 1998, p.10)

Other inhibiting factors identified by authors, including Doucouliagos and Sgro (2000), Maglen, Hopkins and Burke (2000), DTEC (1997), Catts et al. (1996) and Rummler and Brache (1995), include:

- training which is not well designed or delivered
- training which is viewed as an isolated event, with a lack of integration between on- and off-the-job training and a lack of employee incentive to apply learning on the job
- weak training support and performance monitoring capability, resulting from a lack of supervisor involvement and management commitment
- training and human resource planning which is not viewed as a subset of business strategy and strategic planning

conclusions: developing practical, enterprise friendly approaches for demonstrating enterprise ROTI

A substantial body of evidence now exists to suggest that training contributes to enterprise productivity and performance (Plott 1998; Gollan 1997; DTEC 1997; OTFE 1998; Doucouliagos & Sgro 2000; Blandy et al. 2000). Drake suggests that while many training investment decisions continue to be taken on the basis of 'casual, intuitive estimates' (Drake 1995, p.31), it is now possible to provide more information relevant to these decisions. However, in advancing enterprise training evaluation practices there is a need to reorient and reconceptualise our approaches to facilitate widespread application by enterprises.

Much can be learnt from the body of research available on the evaluation of enterprise returns from training. Consistent themes highlighted in this chapter include:

- using a broad definition of training which is relevant to enterprises and incorporates all forms of learning and skill formation
- exercising care with the use of the term *return on investment*—which is used in finance and accounting contexts to determine the quantitative returns, in dollar terms, which result from investment decisions—and not misusing the term in training evaluation contexts
- acknowledging the limited applicability of cost–benefit models for comprehensively measuring and assessing all the benefits of training
- promoting and using more practical, cost effective and credible approaches, relevant to enterprise priorities and available data sources

Most enterprises, and particularly SMEs, do not have the need, resources or expertise to use rigorous, highly technical approaches for evaluating returns on training. As a result, there is a general lack of enterprise interest in detailed

investigation of returns from investment in training frequently advocated in the literature. While researchers and some practitioners have struggled with the dilemma of rigour versus practicality in designing and undertaking ROTI studies, the research evidence demonstrates the importance of providing timely, useful and accessible information that is valued by enterprise decision-makers, rather than focussing on traditional notions of rigour or trying to provide absolute proof of the impact of training on enterprise productivity and profits. Enterprise decision-makers appear more interested in evidence of the contribution of training to organisational change (such as enterprise repositioning as a high road, or high performance competitor) and business strategy, than in efforts to isolate direct, quantitative links with profits and productivity. Consequently, at the training program or intervention design stage, designers and evaluators should identify:

- how the program or intervention addresses the operational and/or strategic priorities of the enterprise
- why this particular program or intervention is the most appropriate solution and how it aligns with other enterprise policies and practices
- how evidence of ROTI will be demonstrated, when and to whom

Kostos (2000) highlights the importance of enterprise evaluation strategies that are 'simple but not simplistic' (p.3) and this view is echoed by other authors, including Field (1999) and Sadler-Smith, Down and Field (1999). There is merit in extending on previous research to create a taxonomy that assists enterprises to select and use a small number of key training outcome indicators which are relevant to the enterprise, encourage the use of available data and can be evaluated by enterprise personnel without the assistance of external researchers or consultants. The taxonomy provided in table 4 identifies over 50 possible training outcome indicators, presented in seven clusters: productivity and efficiency; sales and profitability; quality of products and services; customer service and satisfaction; occupational health and safety; organisational learning and development; and organisational climate, culture and practices. The draft taxonomy was piloted and validated during 1998–99 with six enterprises as part of the development of the practitioner guide, *Showing that training pays. A simple guide for analysing enterprise returns on training investment* (Moy & McDonald 2001). The taxonomy is not intended to be exhaustive. Rather, it provides an extensive list that can be used flexibly by enterprise personnel to identify indicators relevant to their enterprise. Such an approach appears useful in increasing evaluation practices by Australian enterprises and demonstrating returns from investment in training.

table 4: a taxonomy of possible training outcome indicators for ROTI studies

productivity and efficiency
production costs per unit
productivity targets met/exceeded
production/completion time per unit (e.g. forms, loans, clients, projects)
output (per worked hour, per shift, per machine, or per annum)
equipment/facility/asset utilisation (e.g. down time due to machine stoppages, shift changeover time)
equipment maintenance (costs or repair time), or replacement costs
response time (e.g. to service calls or orders)
capacity of staff to solve routine and non-routine problems (e.g. supervision time required)
staffing requirements and workforce flexibility (e.g. dependence on casual/contract labour)
overtime (quantity, cost)
improved innovation in products/services
induction time for new employees
productivity of new employees
sales and profitability
overhead costs
operating costs
operating costs as a percentage of total costs/revenue
value of contracts won, loans processed
revenue/income/sales (monthly, annually, per employee, per team, per branch or store)
market share (number of customers, dollars spent, unit volume sold)
sales to new customers
group operating profit
profit per employee
stock market performance (i.e. shareholder return)
quality of products and services
on time provision of products/services
wastage, reject, error or rework rates
conformance record with quality specifications (e.g. batch yields, throughput of invoices)
achievement/maintenance of quality rating
compliance with quality, legal and/or ethical requirements
achievement of quality award

table 4: a taxonomy of possible training outcome indicators for ROTI studies (cont.)

quality of products and services (cont.)
company image and reputation
compliance with the Investors in People national quality standard
customer service and satisfaction
customer satisfaction levels (with timeliness, availability, quality and price of goods and services)
customer relationships and experiences
repeat business (customer retention or loyalty)
new business resulting from client referrals
more/new customers or markets (e.g. contracts won, loans processed, funding awarded)
lost business
number of complaints
occupational health and safety
accidents or injuries (number, time lost, compensation costs, premium cost/rating)
safety critical incidents (number, cost)
compliance with safety and health requirements (e.g. hygiene testing results)
violation of safety rules
improved response to crises
organisational learning and development
performance appraisal ratings
achievement of organisational competency profile requirements (e.g. to meet accreditation or licensing requirements, new operating environments or facilitate organisational expansion)
number/percentage of employees with nationally recognised qualifications
internal promotions resulting from employee competence and performance
training awards received
employee perceptions of training and development opportunities
alignment with human resources, business and strategic planning
organisational climate, culture and practices
employee retention/turnover/recruitment (e.g. numbers, costs)
absenteeism
disputes/grievances (number, cost or time lost)

table 4: a taxonomy of possible training outcome indicators for ROTI studies (cont.)

organisational climate, culture and practices (cont.)
number of employee suggestions (submitted or implemented)
employee satisfaction and motivation
interpersonal relationships and commitment to team goals
participation in teams and committees
team performance
internal communication and information systems
implementation of new work practices
standardisation of work practices
implementation/maintenance of a service culture
contribution to re-engineering and refocussing of enterprise

note

1 A number of these studies apply Kirkpatrick's training evaluation model, which was developed in 1959 and has been refined over the years (see, for example, Kirkpatrick 1975, 1994). The model consists of a four-level evaluation framework for workplace learning:

- Level 1 – learner reaction to the training program
- Level 2 – evaluation of learning which resulted from the training
- Level 3 – changes in job behaviour resulting from application of knowledge and skills on the job
- Level 4 – observable business results produced by the training, such as reduced costs, or improved work quality or quantity

As Level 4 of the evaluation framework focusses on business results and the organisational impact of training, the model has been applied in several recent ROI and ROTI studies.

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does training pay? evidence from Australian enterprises

Richard Blandy, Michael Dockery, Anne Hawke and Elizabeth Webster

This chapter reports an attempt to replicate significant overseas survey results on the productivity and profitability payoffs to enterprise training using information collected on more than 90 firms in Australia. The research team also undertook three in-depth case studies. The results suggest that:

- Australian firms provide more training to their incoming employees than their United States counterparts
- there exists a positive association in Australia between a firm's profitability and the quantity and quality of training offered by the firm
- there is a positive correlation between training and other forms of investment by Australian firms

The results overall are suggestive of a positive impact of Australian firms' investments in training on their own productivity and profitability.

introduction

THIS STUDY WAS undertaken by a team from five universities, on behalf of a joint venture between Flinders University, Northern Territory University and AustralAsia*Economics Pty Ltd. The study was approved by the National Research and Evaluation Committee (NREC) in October 1998, was completed in June 2000 and published in December 2000 (Blandy et al. 2000). The National Centre for Vocational Education Research (NCVER) supervised the conduct of the study.

A review of recent overseas studies in the United States, United Kingdom and Europe clearly indicates that human resource management (HRM) practices, taken together, are far and away the most powerful predictor of improvements in companies' productivity and profitability (OTFE 1998). Company commitment to the skill and training of its employees is a dominating aspect of a company's HRM practices.

The principal objective of the NCVER study undertaken by Blandy et al. was to collect pilot data to test a number of research designs that could form the basis for collecting the data needed to measure and assess the productivity and profitability payoff to enterprise training in the Australian context.

the EOPP survey

A large United States employer survey was undertaken in 1982 for the (US) Employment Opportunity Pilot Project (EOPP) by the National Institute of Education and the National Center for Research in Vocational Education looking at the effects on the productivity and profitability of firms from training newly recruited employees. The EOPP was focussed heavily on promoting employment through on-the-job training. The survey instrument was developed to provide a unique record of the on-the-job training provided to workers in entry-level positions. An analysis of the results of this survey with respect to on-the-job training is reported in Barron, Black and Loewenstein (1989) and Bishop and Kang (1984).

The present (Blandy et al. 2000) study used a cut-down version of the United States EOPP questionnaire to survey the managers of 38 firms, evenly distributed between Perth, Darwin, Adelaide and Melbourne. This workplace data was gathered throughout the first half of 1999.

Using the data from this survey, the 1982 United States EOPP survey and the Australian Bureau of Statistics (ABS) *Survey of education and training experience* (1989, 1993 and 1998), three issues were examined:

- How much on-the-job training is provided by firms in Australia compared with firms in the United States?
- The effects of on-the-job training on productivity and earnings in firms in Australia and the United States.
- The impact of school-based education and training on on-the-job training provision in Australia.

The main findings of this examination were:

- Australian firms provide extensive training for their incoming employees. About half of the time of incoming employees is taken up with training over the first three months of their employment, compared with about a third of the time of incoming employees in United States firms. The main sources of this difference are the greater hours spent in Australia on formal training off the job and on informal training provided on the job by co-workers.
- This result is associated with Australian workers paying more for their training (through accepting lower starting wages) than happens in the United States, and with employers gaining productivity increases from this training (not offset by employees' wage increases) of about two-

thirds of those in the United States. In fact, nearly all the productivity gains from incoming employees' training were captured by firms in Australia compared with about half of the productivity gains in the United States. The combination of these two factors means that employer-sponsored training is probably about as profitable to Australian firms as it is to United States firms.

- Prior education and training *increases* the likelihood, in Australia, that an employee will receive further training opportunities but reduces the number of *extra* hours that an employee actually spends on further training. This implies that Australian firms are at least somewhat effective in their selection processes in matching trainable people to jobs requiring training.

the CEP survey

A large employer survey was undertaken in the mid 1990s by the University of Sheffield using a questionnaire developed by the Centre for Economic Performance (CEP 1997) at the London School of Economics. This questionnaire examined the effects on the profitability and productivity of firms in the United Kingdom arising from organisational change, market environments, work processes, types of investment, quality control, research and development, HRM, the extent and type of training offered, and industrial relations. Many of the questions required a comparative ordinal response, such as 'how is your company compared to your main competitors in . . .'. Several questions were asked about each type of issue. These responses were combined into indices to measure particular aspects of each firm's environment or activity. Details of these indices and their components are given in Blandy et al. (2000, pp.13–15).

The present (Blandy et al. 2000) study used a cut-down version of the CEP questionnaire to interview 41 firms evenly distributed between Melbourne, Adelaide, Perth and Darwin in the first half of 1999. The data collected were used to explore reasons for differences in the quantity and quality of the training that the various firms provide, as well as the effects of such differences on firms' profitability and productivity.

The main findings of the CEP pilot survey were:

- hours (quantity) of training provided by Australian firms are directly related to:
  - product–market uncertainty and unpredictability
  - other forms of capital investment (in innovation, physical capital and research and development)
  - involuntary labour turnover

- types (quality) of training given by Australian firms are directly related to:
  - the presence of internal labour markets in firms
  - other forms of capital investment by firms (in innovation, physical capital and research and development)
  - competitive product–market conditions
- the profitability of firms is directly related to:
  - the quantity and quality of training provided by them
  - firms paying above market wage rates
  - firms' difficulties in finding suitable employees

These results appear to be largely consistent with United Kingdom results using the CEP survey instrument.

matched plants

A series of 'matched-plant' studies by the United Kingdom's National Institute for Economic and Social Research (NIESR) in the 1980s and 1990s (Daly, Hitchens & Wagner 1985; Steedman & Wagner 1987, 1989; Prais, Jarvis & Wagner 1989; and Mason, Prais & van Ark 1992), involving the examination of productivity differences between German, French and United Kingdom plants, proved very successful in highlighting the benefits that accrue to firms from a more highly trained workforce.

The present (Blandy et al. 2000) study used NIESR's 'matched plant' methodology in an attempt to examine the effects of training on firms' productivity in two industries: hotels and kitchen furniture manufacturers. In its earlier studies, NIESR had already developed a range of productivity measures for individual firms in these industries. In the present (Blandy et al. 2000) study, three pairs of firms were intended to be studied in each industry, but, in the upshot, only five hotels and two kitchen cabinet-makers could be persuaded to participate (in Darwin, Melbourne, Adelaide and Perth). Results of the study are restricted to the hotel sample, therefore.

The present study used a semi-structured questionnaire based on NIESR's published work on its research into hotels and kitchen furniture manufacturers. The questionnaires permitted the desired productivity measures to be calculated.

The productivity measures fail to give any clear picture of the impact of training, however. Significant productivity differences were identified across the hotels, but it was the higher training firms that reported the lowest productivity. In part, this may reflect the difficulty of recruiting closely matched hotels. However, when the results are re-weighted by differences in the price of standard rooms between the different classes of hotels, there still is no obvious

positive association between training and productivity like that found in NIESR's work.

in-depth case studies

In-depth case studies were undertaken of three Australian firms that undertake a good deal of training and that believe that training pays (one each from Darwin, Adelaide and Melbourne). A study by the (Victorian) Office of Training and Further Education (OTFE 1997) was used as a framework for discussions with these three companies.

The experiences revealed by the three case studies show that enterprise returns to training can be exceptionally high, especially for training that is highly specific, rapidly accomplished, and related to the introduction of new technology or working patterns. Such training pays a firm, even if labour turnover is high.

For example, Company X has a labour-intensive production process. A formal induction period of five days is offered to all production line workers. The employee's chances of getting a productivity bonus each month turns out to be directly related to his or her average training test score. The only other variable that has a consistent and significant effect on the chances of getting a productivity bonus is the length of time on the job, which suggests that learning by doing is also, as expected, an important source of work skills and productivity.

Company Y introduced a new production technology involving the adaptation of high-angle rescue equipment for a tree lopping and trimming activity. The training occupied one day. It paid for itself in a fortnight. The rate of return to the company on its investment in training exceeds 500 per cent per annum.

Company Z changed its work culture in a particular department through an intensive training activity involving all of the staff in the department over a series of weekends. The result has been a 25 per cent increase in productivity, and a rate of return to the company on its investment in training again in excess of 500 per cent per annum.

discussion

amount of training provided by Australian firms

The implication from the EOPP data that Australian firms provide more training to their incoming employees (234 hours in the first three months of employment) than their United States counterparts do (151 hours in the same time interval) is quite significant. (A larger sample could show that it was wrong, of course.)

It has been widely supposed that Australian firms provide very little training to their employees. From our data, this does not appear to be true of incoming employees to firms in Australia, although this finding may be influenced by the focus of the United States sample on firms employing low-paid workers. By the same token, it may also be that United States firms are relatively low providers of training by world standards, rather than that Australian firms are high providers.

The ABS *Survey of Education and Training Experience (SETE)* indicates that the average number of hours of training received by employees annually is about 135 hours per year. Since training tends to be concentrated on incoming employees, this figure is not necessarily inconsistent with the Australian EOPP data. If employees who do not receive any training are excluded, the *SETE* provides an estimate of average annual training received by employees of 302 hours per year.

The Australian CEP survey data provide an estimate that, on average, Australian employees in the firms surveyed received about 32 hours of *formal* training each year. This compares with about 44 hours for incoming employees estimated from the Australian EOPP survey but with only about 11 hours from the United States EOPP survey. Both surveys provide a perception of *formal* training provision by enterprises in Australia that is significantly greater than by enterprises in the United States.

The other main source of difference is in the hours spent by co-workers providing new workers with informal training. In the Australian sample, 62 hours were spent by co-workers providing new workers with informal training; in the United States sample, 27 hours was provided. Could this difference be traced to a difference in worker solidarity between the two cultures, potentially?

the profitability of training

66

But why would Australian firms provide more training to their employees than United States firms do? Further analysis of the EOPP data suggests that the reason for this result is twofold. First, *Australian workers pay more for their training (through accepting lower starting wages) than happens in the United States.* This suggests that Australian on-the-job training is more 'general'—that is, useful in a broad range of work places—than it is in the United States.

Second, again according to the EOPP data, nearly all the (admittedly smaller) productivity gains from incoming employees' training were captured by firms in Australia, compared with only about half of the (larger) productivity gains by firms in the United States.

According to the EOPP data, therefore, training would potentially appear to be more profitable for firms in Australia than in the United States because Australian firms pass the lion's share of training costs on to their employees (in

the form of lower wages), while reaping moderate productivity gains only slightly captured by their employees through wage increases.

Consistent with this result, the EOPP data suggest that Australian firms also screen employees that are going to receive on-the-job training more thoroughly than United States firms do.

This pattern suggests an outlook among Australian firms that is very alive to the costs and benefits of training and that sees Australian firms practice strategies that enable them to reap a better return from the training they provide than United States firms do.

The profitability of training in Australia was tested more directly using the CEP pilot data. A profitability index based on firms' statements about their profitability compared with their main competitors (and other measures) was found to be positively associated with indexes of the amount of training (expenditure on training relative to main competitors, and other measures) and of the quality of training (existence of a formal training strategy, written commitments to training in workplace agreements and awards, etc.) that firms provide to their employees.

These results are presented in table 1.

table 1: regression analysis of firms' profitability against their training quantity and quality, the labour shortages they are experiencing and the wage rates they are paying (compared with competitors)

	coefficients	t statistic	significance
(constant)	0.251	0.382	0.704
training quantity	5.120e-02	2.102	0.043
training quality	6.810e-02	1.728	0.093
external labour market shortages	0.574	2.499	0.017
wage rates higher than competitors	0.594	1.963	0.057

note: $R^2 = 0.32$
source: Australian CEP survey undertaken for the present study

The data in table 1 suggest that there exists a positive association between firms' profitability and the quantity and quality of training offered by the firm. In addition, the more profitable firms are paying above market wage rates and are operating in labour markets where suitable labour is hard to find and keep (suggesting a climate of expanding demand and competition for labour in industries where firms are profitable).

Such a result would explain why Australian firms, at least according to the pilot data collected in Australia for this study, provide more training to their incoming employees than United States firms do.

The principal reason why training is profitable to firms is that it increases the productivity of their employees more than it raises their employees' wages and by a sufficient margin over a sufficiently long period of time to more than recoup the costs of providing the training. Hence, the training that most firms are likely to be willing to pay for is the training (and informal learning) that occurs at entry points to employment where new employees learn the basics of the tasks involved in their jobs. Significant productivity effects from induction training and learning were found in the two case studies that explored this question. Hence, expanding firms are likely to conduct more training than non-expanding firms or firms contracting in size.

Another sort of training that is likely to have high productivity effects is training associated with the introduction of new technology or new work practices. This was found also to be true in the two case studies that examined the introduction of a new technology, on the one hand, and of new methods of working, on the other. It follows that firms that are more innovative are likely to undertake more training than firms that are less innovative.

The case study involving a change in work culture is a particularly interesting example of the productivity effects of training because such a result effectively extends the effects of the training from the particular individuals who have received it to all incoming employees as well (who automatically become inducted into the new culture rather than the old). As a result, the productivity effects of training to change the work culture are independent of labour turnover and, hence, are likely to be more profitable than other forms of training whose effects are cut short if the particular workers who have received training quit.

The case studies imply, therefore, that the amount of training that firms undertake is likely to be affected by the general macro circumstances of the economy. Expansionary economic conditions when firms are hiring many new employees is likely to be associated with an upsurge in firm-sponsored training and learning. Circumstances in which competitive pressures are heightened leading to increased pressures to be innovative are also likely to lead to increased firm-sponsored training. Hence, there are good reasons why one observes a positive correlation between training and other forms of investment by firms. A good method of enhancing the amount of training undertaken by firms is to ensure they encounter an expansionary and competitive economic environment.

conclusion

The overall results emerging from the various approaches tried in the course of this study are suggestive of a positive impact from investments in training by enterprises on their productivity and profitability. It is important to recognise in this conclusion, however, the general finding that *informal* learning and training methods, both on and off the job, were regarded by many of the businesses as

generally superior to formal classroom training. The reason for this opinion among business people is a view that *real* knowledge was learned in the former, while the latter was too often mostly about obtaining paper qualifications. Further, some of the most important skills from businesses' point of view were communication skills, team-working skills and leadership skills—not just task-oriented, motor skills.

While the results of the present study may be suggestive of a positive impact from enterprises' training on their productivity and profitability, the surveys and case studies undertaken need to be replicated with significantly larger samples if the conclusions are to be based on a sound statistical footing.

It is important that this be done because the results are significant in a policy sense, particularly in the context of the debate that has emerged about reasons for the weakness of the Australian dollar relative to the United States dollar; namely, expected slower productivity and profitability growth in Australia. It is unfortunate, in this respect, that the ABS is planning to drop its existing training expenditure and training practices surveys.

We would strongly recommend, therefore, that the Commonwealth Government:

- either reverse this decision and reinstate these surveys, amended on the basis of the EOPP and CEP surveys trialled in this study, or, that it
- fund a new large-scale enterprise-level training survey, based on the EOPP and CEP surveys trialled in this study, preferably in a longitudinal data context, perhaps attached to the present Business Longitudinal Survey, to provide a solid quantitative basis for assessing the returns to training by enterprises in the Australian context. Such information is crucial to providing a proper basis for considering policy towards enterprise-level training

We would also strongly recommend that case studies continue to be undertaken by NCVER and other training research bodies using the framework developed by the Victorian OTFE in order to provide a steadily increasing body of evidence on the productivity and profitability of individual firms' training experiences.

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enterprise return on a training investment

Chris Doucouliagos and Pasquale Sgro

In this chapter, a cost-effective training evaluation model is developed. The model consists of four sequential steps, commencing with collecting data, pre- and post-training exploration of performance, linking performance outcomes to training and, finally, the calculations of return on investment (ROI). The model has been designed to suit a wide variety of organisations and training programs. The model is applied to two leading Australian organisations.

introduction

TRAINING AND THE evaluation of training programs have been in the spotlight in recent years, both in Australia and overseas. It is widely acknowledged that investment in training by enterprises is important if Australian firms are to achieve the status of high-performance enterprises. The selection of the appropriate training program and the quantification of the benefits from such programs are both crucial inputs into the decision-making processes of successful enterprises. The returns from training are maximised when training programs are integrated within the overall business strategy. Training is part of an organisation's investment profile, along with expenditure on other investments such as research and development and new plant and equipment. It is important to evaluate the contributions of these investments to an organisation's performance. Likewise, it is essential that the contributions of training investments be assessed. Training is a serious process and an essential investment. Hence, training evaluation must be treated with the importance it deserves. The success of training programs can be evaluated using a variety of statistical techniques applied to data on training inputs and performance outcomes. Unfortunately, with the exception of a handful of studies, there is a dearth of Australian empirical analysis of training. This reflects the lack of evaluation of training throughout Australian industry.

This chapter was motivated by two considerations. First, there is the pressing need for evidence of the types of financial benefits Australian firms receive from training. Second, there is a call from training professionals for a practical, flexible and cost-effective process of evaluating training. In this chapter we

present new evidence of the returns to training experienced by firms investing in training. We also present a training evaluation model that has been designed to be general enough for use by other organisations and for a variety of training programs. This model of training evaluation involves a four-step evaluation process that has universal application, from a competency-based program to evaluating training at a strategic level. The evaluation of training obviously requires the collection of data on performance and the subsequent analysis of this data. The four-step training evaluation process has been designed to enable practitioners to extract the maximum information from the available and usually limited data. It suits all training programs, from the simplest to the most complicated, and from those requiring little expenditure to those more demanding of scarce resources. It is especially useful for evaluating training programs that are introduced in conjunction with other interventions such as new technology and changes in employee practices.

The evidence presented in this chapter is part of a larger study. The case studies all involve organisations, with real training programs which incurred costs and from which benefits have been derived. On the basis of the case studies, it can be concluded that significant returns from training can be expected and these are independent of industries, ownership, structure and nature of the business operations. Significant returns accrue from training when it is well designed, expertly delivered and when organisations employ these new skills and knowledge productively.

aims and scope of study

The present study develops and tests an evaluation instrument for use by enterprises to assist them to evaluate (both financially and non-financially) their training investment decisions. This evaluation instrument uses a wide variety of statistical techniques dependant on the quantity and quality of the data available. The instrument enabled us to determine the value to an organisation of various training projects.

There are three major objectives driving this chapter. The first objective is to present detailed examples or case studies of actual training programs in Australian industry. Understandably, the organisations that make up these case studies were very sensitive about their data as well as their training programs. They operate in competitive markets so that the amount of information we have included in this chapter has taken this factor into account. Nevertheless these examples illustrate the types of training undertaken by Australian organisations and illustrate how training programs can be evaluated, what data is necessary for evaluation and what techniques can be applied as part of the evaluation process.

The second objective is to quantify the net gains derived from training programs. This includes identifying the costs and benefits associated with training and determining the net financial impact of the training. While training

programs often generate benefits beyond financial considerations, an organisation's stakeholders frequently need to know what the impact of training is on the 'bottom line'.

The third objective of this chapter is to develop a simple and practical model of training evaluation. Such a model should be general enough for use by most, if not all, organisations.

During the preparation of this chapter, a number of organisations were consulted. Seven of these were chosen for the case studies. The seven organisations, together with their principal economic activity and employment size, are listed in alphabetical order in table 1.

table 1: case study organisations, industry grouping, employment and training outcomes

case study organisation	industry	employment	positive impact of training on	estimated ROI %
Australia–New Zealand Direct Line (ANZDL)	transportation – freight	300	goal setting, time management	323
Franklins	retail	27 900	costs of induction	1 000
Huntsman Chemicals	manufacturing	400	safety and WorkCover premiums	1 277
Kodak Australasia	manufacturing	2 000	productivity	256
Mission Australia	charity	2 200	staff turnover	7 125
QR (Queensland Rail)	transportation – rail	14 800	fuel usage, time and train handling	30
Target Australia	retail	23 000	sales and staff turnover	980

The case study organisations cover a significant breadth of Australian industry and, collectively, employ over 70 000 people.[1] Using the number of employees as an indicator of size, it is evident that the case study organisations are relatively large organisations which have access to greater levels of resources than smaller organisations. However, the training evaluation methodology employed in this chapter is flexible enough to be used by smaller organisations.

Given the diversity in the case study organisations, it is not possible to compare the organisations, and, specifically, it is not possible to compare their rates of return because the training programs are so diverse. There is no benchmarking undertaken in this chapter. In table 1, we also present a list of the organisations, together with the principal benefits derived and the estimated ROI associated with each case study.

It can be seen from table 1 that all of the case study organisations received a positive ROI on their training program, and that all of these are large. Some rates of return are very large, indicating the possibilities open to organisations. The respective rates of return are not comparable as the firms are not operating in the same industry or different training programs are being evaluated. They are presented as a summary rather than for comparison purposes. Also note that the ROI figures are lower bound estimates, as all the costs could be identified but not all the benefits. In addition, the range and timing of benefits varied from program to program, making comparison of rates of return infeasible. It should be noted, also, that an ROI of 50 per cent for a company may be of more economic and strategic importance than an ROI of 300 per cent for another company. The fact that ROI was positive and significant for all seven case studies does not mean that training will always have positive returns. Nor does it mean that all training programs for these organisations have generated positive returns. However, it does indicate that a well-designed and delivered training program can be expected to generate significant returns and is likely to compare favourably with other forms of investment.

The two main forms of data used are time series and matched pairs, pre- and post-training. Additionally, both subjective and objective data are used in a number of the case studies, illustrating the diversity of data sources available to organisations and the use to which such data can be put. The evaluation covers a range of projects and a range of trainees, from operators to managers.

case study organisations: lessons

The main points arising from our analysis of the evaluation of various training programs for our case study organisations are as follows:

First, a simple four-step methodological framework within which evaluation is best carried out is presented. This framework consists of collecting data, pre- and post-testing, multivariate analysis and calculating the ROI.

Second, a number of quantitative techniques are readily available (some of which are presented) for evaluating training programs. These techniques vary in complexity but are generally easily accessible through computer packages.

Third, the choice of technique depends on the quantity and quality of the data. This applies equally in the case whether the analysis is qualitative or quantitative.

Fourth, the financial and other returns from a well-designed training program are substantial. For commercial-in-confidence reasons, the evaluation results for the various training programs are presented in the form of percentage or level changes but represent substantial dollar returns.

Fifth, the training programs involve a range of occupational group and employment levels. Nevertheless from new inductees up to senior managers of companies, even though the estimated ROI varies substantially from training

program to training program, there is a remarkable consistency in the positive ROI achieved by these programs.

four-step evaluation process

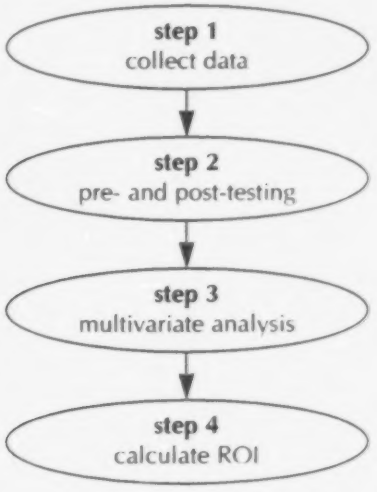
Training evaluation often follows Kirkpatrick's four levels (Kirkpatrick 1994) or the methods outlined in *Return on training investment* (OTFE 1997), a document used by a number of Australian organisations. After consultation with a number of organisations, including the case study organisation, we found it useful to restate the Kirkpatrick and *Return on training investment* models into a four-step process. These four steps form the basis of the methodology adopted in this chapter and are illustrated in figure 1.

It is suggested that these four steps be followed sequentially. By undertaking first pre- and post-training analysis, it can be determined if there was any change in the performance measure of interest. If, on the other hand, ROI was undertaken first, and a net financial gain is identified, it is not clear whether this is owing to training or some other factor. Likewise, if a net loss was recorded, we want to know if this is owing to training or some other factor.

step 1: data collection

The obvious first step in the evaluation process is the collection of data. Without adequate data, evaluation is not possible. The data needed depend on the training program and, especially, what the outcomes of the training are meant to be.

figure 1: the four-step training evaluation process



Data are needed on the following four categories:

- a measure of performance
- a measure of the training
- the costs of training
- the benefits arising from training

For most organisations the major difficulty in the data collection process will be the collection of benefits data and the measurement of benefits. Where some of the appropriate data are not available, the evaluation process is necessarily restricted. The costs of training are usually well known and easily identified. This is not so for benefits. Often, it may be necessary to seek the co-operation of areas other than the training function within the organisation for data on benefits, and often, some of the benefits can not be quantified.

step 2: pre- and post-training

Once the data is collected, the next step in the evaluation process is to compare pre-training performance and/or behaviour to post-training performance/ behaviour. Evaluation here involves investigation of the following:

- the direction of change in the target performance measure or behaviour
- the magnitude of the change
- the statistical significance of the change
- the economic significance of the change

step 3: multivariate analysis

At the multivariate analysis stage, evaluation involves exploring the extent to which interventions other than training contribute to changes in behaviour and performance. This is an important step, as it helps to determine the extent to which training on its own has had an impact. This step is not always possible because the necessary data is unavailable. It is, however, highly recommended.

step 4: calculate ROI

The final step is to compare the costs of the training to the benefits derived from the training. This comparison is usually expressed as a cost–benefit ratio (CB) and ROI. The analysis at this step can be undertaken at a single point in time or over a number of time periods. In the later case, this can involve Net Present Value and Discounted Cash Flow analysis.

The evaluation procedure adopted for the case studies presented in this chapter and advocated for other organisations thus involves collecting data, comparing the data pre- and post-training, using multivariate analysis to

identify the contributions of training and finally determining the impact of training on the 'bottom line'.

Evaluating training using these four steps is a simple procedure, although not necessarily easy. Wherever possible, all four steps are recommended to derive plausible estimates of the impact of training. The measures of the impact of training are by necessity only estimates. As noted by many researchers, it is rarely the case that conclusive proof will be found about any organisational intervention. Rather, analysts compile credible evidence about the impact of training. This evidence must satisfy a number of requirements. The data used must be of sufficient quality. The techniques applied must be scientifically valid, and the analysis should address the possibility that training may not be the only factor behind changes in performance.

training evaluation with time series data

Training evaluation for four of the case study organisations—Huntsman Chemicals, Kodak Australasia, Mission Australia, and Franklins—was undertaken using time series data.

Time series data are data collected over a number of time periods. In the case of Huntsman Chemicals and Mission Australia the data frequency is monthly and quarterly respectively. For Kodak Australasia the data were weekly, while for Franklins annual data are analysed. These are the usual data frequencies encountered in training evaluation, although the data could even be daily.

We have selected the Huntsman Chemical Company as the case study to discuss in detail.

Huntsman Chemical Company Australia Pty Ltd

organisation profile

The Huntsman Chemical Company Australia has its origins in 1928 as a joint venture between Monsanto Limited and the Nicholas Company, which founded the Southern Cross Chemical Company. Today, the company is a United States-based multi-national manufacturer of chemicals, plastics and resins, selling mainly to domestic markets and employs over 400 people.

As part of their strategic planning process, Huntsman Chemicals developed several key performance indicators. One of these relates to safety and is known as the Medical Treatment Injury Frequency Rate. Health and safety is important to this organisation, and it has committed itself to improving safety through a combination of engineering procedures and behavioural change.

the training program

In 1998, two safety training programs were implemented. Both programs were designed to improve workplace safety performance. The training program targeted individual actions and behaviour, and how they contribute to accidents in the workplace. Further details on the training programs can be found in Hancock (1998).

The organisation was interested in the impact of safety training on the incidence of workplace accidents. The expectation was that the training would reduce accidents in the workplace. The empirical investigation involved each of the four steps.

step 1: data collection

The data used for this analysis was derived from the organisation and involves monthly data on the number of lost time injuries (LTIs), medical treatment cases (MTCs) and first aid cases, for the period January 1993 to February 1999. These three are all mutually exclusive (distinct) categories:

- An LTI is defined as a work injury leading to death or inability to work for at least one full day or shift anytime after the day or shift in which the injury occurred.
- An MTC is a work injury requiring treatment by a medical practitioner and which is beyond the scope of normal first aid including initial treatment given for more serious injuries.
- First aid cases involved a work injury not requiring treatment by a medical practitioner and which is clearly within the scope of normal first aid.

step 2: pre- and post-training analysis

Table 2 compares the average monthly incidents before and after training. For example, the number of LTIs before training was, on average, 1.65 per month. After training, this had fallen to 0.55, on average, per month. Statistical analysis, using both parametric and non-parametric techniques, indicates that the reductions in accidents reported in table 2 are statistically significant at the 1 per cent level. Hence, the conclusion drawn is that this change is not due to chance. These reductions are significant from a business perspective, as they indicate improved safety performance and a safer workplace. Importantly, the organisation regards these changes to be of economic significance.

table 2: **Huntsman Chemical Company, pre- and post-safety training analysis**

variable	before training	after training	outcome
LTI	1.65 per month	0.55 per month	statistically significant reduction
MTC	2.92 per month	0.73 per month	statistically significant reduction
LTI and MTC	4.23 per month	1.27 per month	statistically significant reduction
first aid	11.03 per month	6.36 per month	statistically significant reduction

step 3: multivariate analysis

Multiple regression analysis allows tests to be conducted on the impact of training on safety, after controlling for other intervening factors in the workplace. Multiple regression analysis was undertaken using four different explanatory variables. First, a dummy variable was included to capture the impact of training. The second set of explanatory variables was the inclusion of seasonal dummies. Seasonal dummies are used to explore and capture variations in accidents over the course of the year. A third effect that must be incorporated is the existence of any time trends. For example, as workers gain more experience with new plant, equipment, products, processes and procedures, the incidence of accidents may fall. Moreover broader community awareness of workplace safety can be expected to reduce the incidence of accidents in the workplace. Related to this is the autoregressive nature of many time series. If accidents are high in the past and present, this may affect the future incidence of accidents. This is the fourth set of explanatory variables.

It is important to separate these seasonal, autoregressive and time trend effects from the impact of training. The aim is to investigate whether training has had any impact on accidents, after controlling for these other effects. It is important to note that over the course of 1998, the only occupational health and safety-related interventions were the two safety training programs. Had there been other interventions, it would have been necessary to control for their impact on safety performance.

The regression methodology adopted was to commence with a 'general model' and to sequentially reduce this to a final 'reduced model'. The final models were chosen only if they passed various statistical tests.[2] Only the final version of the estimated models is presented below. This procedure was adopted for all of the multivariate analyses presented in this chapter. The multiple regression analysis results are presented in table 3, listing the coefficients relating to a number of explanatory variables.

In table 3, the dependent variables are the number of LTIs and first aid cases respectively. The number of first aid cases had been falling before the safety-training program was introduced. However, even after allowing for this trend in first aid cases to fall over time, there is strong evidence that the introduction of safety training did reduce the incidence of first aid cases. The coefficient on the

training variable is negative and is strongly statistically significant. A negative coefficient indicates that training reduced the number of first aid cases. For the sake of brevity, the seasonal dummies are not included in the above results.

The analysis relating to LTIs is presented in column 2 of table 3 where only the key variables of interest are listed. LTI was also falling over time owing to factors other than training; this is captured by the coefficient on the time trend. However, safety training has had a clear positive impact on the monthly LTI rates in that it has reduced them—the coefficient on training is negative and statistically significant.

table 3: Huntsman Chemical Company, multiple regression analysis

variable	LTIs	first aid cases
constant	5.80***	16.91***
safety training	-0.88*	-3.63***
time trend	-0.06***	-0.15***
adjusted R-squared	0.35	0.44
Durbin-Watson statistic	2.18	1.99
F-statistic	3.15***	10.53***

note: *, *** statistically significant at the 10 per cent and 1 per cent levels, respectively

step 4: return on training investment (ROTI)

Because of the nature of Victorian WorkCover premiums, any reduction in injury rates and, hence reduction in WorkCover premiums will occur with a lag. In 1997–98, premiums fell by 5.5 per cent. This period included the training period and a couple of months after the training period. In the following year, premiums fell marginally. The real benefit of the training program can be seen for the premiums in 1999–2000, with premiums likely to fall in the order of 37 per cent. (Organisations are notified about the likely premium for the year ahead.) This is a very significant reduction in costs and reflects the gains accruing from the training program.

The rate of return from the training program was negative in the first year after the training program because the reduction in premium was more than offset by the cost of the training program. However, the ROI increases to about 1277 per cent in total by the second year! This reflects the lagged response of premium levels to changes in the pattern of injuries. The cost reduction was actually almost 13 times higher than the cost of the training program, which translates into 1277 per cent ROI. That is, each dollar spent on training returned about $12.77. The ROI on this training represents a highly attractive and very healthy return on funds spent on training to improve safety.

table 4: **Huntsman Chemical Company, rate of return to safety training investment**

year	WorkCover premiums (base 1996–97 = 100)	reduction in premiums %	ROTI %
1996–1997	100.0		
1997–1998	94.5	-5.5	
1998–1999	94.4p	-0.1	-95
1999–2000	59.9p	-36.6	1277

note: p = preliminary

Note that these are returns to the organisation and, hence, represent the private rate of return to the organisation from its investment. The social rate of return will be higher because the reduction in injuries translates into benefits for the workers involved. These returns are not captured in table 4. Hence, the ROTI presented in table 4 should be seen as a lower bound estimate of the total rate of return on training.

training evaluation with matched pairs

Three case study organisations were analysed using matched pairs: QR, ANZDL, and Target. The matched pairs data relate to the same individuals for the pre-training period compared to the post-training period. The data used in this chapter are disaggregated data over two time periods. The disaggregated data used here are the most detailed data that can be used in training evaluation. The level of the individual trainee is the highest form of disaggregation possible. Such detailed data allow the training evaluation process to determine both the overall impact of training, as well as which individuals improved, which individuals lagged behind, and the degree to which individuals' behaviour and performance changed. The QR and Target studies are presented in this chapter.

QR

organisation profile

QR (formerly known as Queensland Rail) was first formed in 1865 and is, today, one of Australia's largest and most modern rail networks. In 1998, QR had 1114 passenger kilometres (millions), 30 119 net tonnes kilometres (millions) in total freight traffic and employed 14 800 people.

the training program

The training program is known as the Train Dynamics Concept Development course. This course involves the application of action research and action

learning principles to practical driver training. The program is recognised internationally as best practice. The aim of the training is to improve operational performance and encourage train drivers to test ideas on train-driving simulators.

Evaluation can be undertaken by comparing train drivers' performance before and after the training program. Of particular interest to QR is the learning of good train handling. This involves minimising in-train forces in general and reduction of the number and size of the slack action transients (to be discussed later).

step 1: data collection

The data used relate to 60 train drivers at two points in time: prior to and after the training. The performance data was collected at the time of training. All of the trainees were previously trained train drivers.

Several measures of performance were investigated. In this chapter we focus on two of these: the time taken to drive the train, and the fuel used. The evaluation of the train drivers' performance is determined by the drivers' adherence to the timetable and the importance of minimising fuel use.

The two variables are related, and if a reduction occurs in any of these variables, substantial savings can be made. Fuel efficiency and time are obvious performance measures. Train handling is the other important area of train driving, as it impacts on passenger comfort and wear and tear on trains and rail.

step 2: pre- and post-training analysis

The pre- and post-training performance measures are presented in table 5. Statistical significance was tested using non-parametric techniques. It can be seen from the results presented in table 5 that there was a slight increase in the time taken to drive the train after the training. This increase, however, is not of economic significance and it is not statistically significant. Some increase in time taken is acceptable if this is a result of improving other aspects of train handling.

Fuel usage fell by over 4 per cent. However, adjusting the raw fuel usage figure by the load of the train shows even greater fuel savings, of over 6 per cent. This is of economic significance as fuel is a major cost item.

It should be noted that one of the benefits of the simulator training is that there are no interventions other than training, so that the entire performance improvement can be attributed to training.

table 5: pre- and post-training performance analysis, QR trainee train drivers

performance measure	first run pre-training average	second run post-training average	percentage change
time	35.69	35.75	+0.17
fuel usage	132.44	126.84*	-4.42
fuel per load usage	0.19	0.18**	-6.42

note: *,** statistically significant at the 10 per cent and 5 per cent levels, respectively

step 3: multivariate analysis

In order to gain additional insights into the effectiveness of training, multiple regression analysis was undertaken. This helps to identify some of the determinants of train driver performance.

For example, in one regression analysis, the dependent variable was the fuel used after training (adjusted for the load of the train). A number of explanatory variables were introduced. These included characteristics of the train drivers, such as their age, education level, the number of years as a train driver, the number of years employed by QR, and the depot to which the train driver belonged. The second set of explanatory variables related to the load distribution of the train. This involved controlling for rear-loaded, centre-loaded, block train, mixed passenger, passenger train and Great Southern Passenger Express (GSPE). The GSPE was chosen (the choice does not affect the results) as the basis of comparison, and dummy variables were used to represent the other types. The third set of explanatory variables involved individual performance measures—time and train handling recorded in the pre- and post-training period. The pre-training period measures were included to explore whether the performance before the training influences a trainee's performance after the training. Note that in order to ensure consistency, the length of the track was the same in the pre- and post-training periods.

After sequentially eliminating statistically insignificant variables, the final results suggest the following:[3]

- The trainee's depot is an important determinant, with drivers from the metropolitan and regional services group recording *lower* levels of fuel usage.
- As expected, the time taken to complete a journey is *positively* associated with fuel usage.
- Centre-loaded, block trains and passenger trains use *less* fuel than the GSPE.
- Mixed pass trains use *more* fuel than the GSPE.

- Fuel usage pre-training is *positively* related with fuel usage post training. That is, even though training was found to reduce fuel usage, those who used more fuel in the pre-training period tended to also use more fuel in the post-training period. This was statistically significant at the 1 per cent level.

step 4: return on training investment

Calculating an ROI for the train driver training is more complicated than for some of the other case studies. The costs of the training program include costs associated with travel, accommodation, the costs of the simulator and wages. The main benefits to the organisation are fuel cost savings and savings in maintenance as a result of better handling of the train and reduced shock to rail infrastructure. Lower bound estimates of the likely reduction in these costs were made by QR engineers.

There are also other benefits arising from better train handling. Better train handling decreases the probability of derailments and also reduces the probability of damage to goods and disruption to the workforce. Unfortunately, none of these benefits could be estimated with any degree of accuracy, even though these benefits do exist. Given that all of the costs but only some of the benefits could be quantified, the CB ratio and the ROI are lower bound estimates. That is, they should be seen as *minimum* rates of return.

The actual costs and benefits can not be disclosed. However, the estimated CB ratio was 130 per cent and the estimated *minimum* ROI was 30 per cent. That is, each dollar spent on train driver training returned a *minimum* of $1.3 to the organisation, which is a net benefit (cost reduction minus cost of training) of $0.30 for each dollar invested.

This ROI is constructed on the assumption that the benefits are a one-off event. However, it is believed that the benefits are likely to continue over time. That is, the rate of return to train driver training is likely to be much higher, as the benefits continue to flow over time.

Target Australia

The focus of the Target Australia case study is on the measurement of behavioural change as a result of training and the links between behavioural change and performance. The training undertaken by store managers and the data are individual observations for matched pairs. Changes in leadership styles are investigated using pre- and post-training analysis, and multiple regression analysis is used to establish links between training and performance.

organisation profile

Target Australia is part of the Coles Myer Ltd group—Australia's leading retailer. Target is recognised as the leading apparel and home retailer, operating 130 stores nationally. Target employs more than 23 000 people, many of whom are employed either on a casual or part-time basis. A typical Target store is run by a management team of six to eight managers, supported by a staff of 150 to 200 people.

the training program

Managerial effectiveness is important, and it is necessary that store managers have highly developed people and leadership skills. Target's training and development focus has been on behavioural change, emphasising effective productive thinking, increasing constructive behaviours and decreasing less effective behaviour. Behavioural change is expected to facilitate self-growth and organisational development.

Since 1994 Target has been using the Life Styles Inventory program as a tool to assist managers in Target and Fosseys to identify effective and constructive management styles (see Life Styles Inventory LSI 2). This program is run nationally and involves a version of 360-degree feedback that is measured against self-concept and externally benchmarked behaviours. Life Styles Inventory is a tool that supports behavioural shift by identifying and contrasting constructive with less-effective management styles based on long-standing and validated research.

step 1: data collection

The evaluation was conducted using matched data for managers located at 39 individual Target stores. The data set has been limited to 39 store managers who had remained in, and managed, the same store in the pre- and post-training period. These stores are distributed across all Australian States and should be fairly representative of the rest of Target's store population.

The evaluation is undertaken by comparing change in measured behaviour scales and actual store performance. Store managers were rated in each of the 12 behavioural styles. The ratings were made by the individual store manager, peers, supervisors or reportees. These people were judged to be able to provide honest and constructive feedback.

step 2: pre- and post-training analysis

Analysis of pre- and post-training scores shows that the training program reduced the incidence of several of the defensive/less-effective behavioural styles. The largest reduction occurred in the mean value of the four behavioural styles listed in table 6. Both parametric and non-parametric tests indicate that

the decline in these less effective styles is statistically significant. Importantly, these reductions are desirable from Target's perspective. For example, a lower mean scale for the 'dependent' scale is indicative of greater managerial effectiveness, and a lower mean scale for the power scale is expected to be associated with higher productivity (see Life Styles Inventory LSI 2, for full details). The fourth column in table 6 lists the proportion of store managers who improved in their behaviour; for example, 94 per cent of the store managers recorded a reduction in the 'conventional' style.

table 6: Target Australia, store managers: reduction in negative behavioural styles, matched pairs*

behavioural style	pre-training mean	post-training mean	proportion of store managers improving %
conventional	0.535	0.387***	94
dependent	0.450	0.339***	88
power	0.289	0.206**	76
perfectionistic	0.611	0.452***	94

notes: * scores are adjusted to ensure compatibility between the post-training and pre-training scales
, * statistically significant at the 5 per cent and 1 per cent levels, respectively

The next step is to explore the links between changes in the measured scales for each behavioural style and performance. The measure of performance analysed here is sales growth. This is the change in store sales from the pre-training period to the post-training period. Sales growth was first correlated with the scores attained for each of the 12 behavioural styles. When the entire data set is used, that is for all stores, the highest correlations were between sales growth and 'humanistic-encouraging' scale (correlation coefficient = 0.28, statistically significant at the 10 per cent level) and the 'achievement' scale (correlation coefficient = 0.38, statistically significant at the 5 per cent level). The 'humanistic-encouraging' scale captures participative leadership, with a focus on growth and development of people around them which 'inspires self-improvement by teaching subordinates to think for themselves, and build problem-solving skills and confidence' (Life Styles Inventory LSI 2, p.21). Achievement is associated positively with sales growth. 'Achievement managers are skilled problem solvers, action-oriented decision makers and calculated risk takers' (Life Styles Inventory LSI 2, p.106).

The correlations between sales growth and the behavioural scores recorded after the training program, using the preferred matched data set, are listed in table 8. Once again, the constructive styles such as 'humanistic-encouraging' and 'achievement' are positively correlated with sales growth. Higher scores for 'self-actualising' (confident and creative and flexible in thinking) and 'affiliative' (warm, trusting and socially skilled and emphasising teamwork) are also

positive to an organisation. Hence, the positive and statistically significant correlation with sales growth is encouraging. The negative correlation with 'avoidance' (avoiding responsibilities, self-doubt and fear of failure) is expected. The third column in table 7 lists the proportion of store managers who improved their leadership style.

table 7: Target Australia, store managers: correlations between post-training behavioural styles and sales growth, matched pairs

behavioural style	simple correlation coefficients	proportion of store managers improving %
humanistic-encouraging	0.37**	50
affiliative		
avoidance	-0.32*	50
achievement	0.39**	52
self-actualising	0.46***	61

note: *, **, *** statistically significant at the 10 per cent, 5 per cent and 1 per cent levels, respectively

step 3: multivariate analysis

The analysis presented in tables 6 and 7 abstracts from the multivariate nature of the sales growth process. In order to place the impact of training in its proper context, it is important to introduce into the analysis the influence of factors other than training. As in the other case studies, multiple regression analysis can be used to draw the relevant inferences. The data once again relates to the matched stores. The dependent variable is the change in sales adjusted for the total floor space of the store. A number of explanatory variables are included. The key variables of interest are the behavioural styles. These variables are calculated as the change in the scale recorded for each behavioural style. This is the change in the behavioural scales from the pre- to the post-training period. This allows testing for a hypothesised link between sales growth and change in behaviour resulting from the training. In addition to these, State dummies were included to capture any differences in the competitive and regulatory environment in the State in which the store is operating. The change in hours worked was included to capture the contribution of labour (this is the sum of casual, part-time and full-time employees). Finally, the gender of the store manager was also included as an additional control variable (22 per cent of the store managers in this sample are females).

In all of the regressions, the 'humanistic-encouraging' style is always statistically significant, at least at the 5 per cent level. Because of the low number of observations relative to the large number of potential explanatory variables, there is a danger of both multicollinearity and the possibility that the multiple regression analysis will not identify properly the relevant associations.

It is, thus, important to simplify a model with many variables to what may be regarded as the more important relationships. After sequentially exploring a number of regressions and eliminating statistically insignificant variables, a final and preferred multiple regression model was arrived at. From the final regression analysis the following inferences can be drawn:

- Sales growth is *positively* associated with 'humanistic-encouraging' styles. The higher is the change in this scale (post- minus pre-training), the greater is sales growth. This is statistically significant at the 1 per cent level.
- Sales growth is *negatively* associated with 'affiliative' styles. The higher is the change in this scale (post- minus pre-training); the lower is sales growth. This is statistically significant at the 1 per cent level. This is the opposite of the result presented in table 7, and arises because in table 7 the influence of other factors was not controlled for.
- Sales growth is *positively* associated with 'achievement' styles. The higher is the change in this scale (post- minus pre-training), the greater is sales growth. This is statistically significant at the 1 per cent level.
- Sales growth tended to be *lower* in some States, with statistical significance varying from 1 to 5 per cent, depending on the State.
- Changes in hours worked were *positively* associated with sales growth. This is statistically significant at the 10 per cent level.

The adjusted R-square associated with this regression was 0.55, and the regression was free from heteroscedasticity (heteroscedasticity is a common problem in cross-section analysis). This regression analysis presents strong evidence that the Life Styles Inventory program did have a positive impact on sales growth. While the 'affiliative' style has a negative association with sales growth, the 'humanistic-encouraging' and 'achievement' styles taken together have a greater impact, so that the *net* effect of these three styles is to increase sales growth.

Sales did not increase in all stores post-training. Many factors affect a store's sales performance, such as changes in the degree of competition, advertising, pricing and customer shopping patterns. These are independent of and outside of the control of the store manager. Thus care has to be taken in inferring that training is the only factor that contributes to sales growth. Indeed, about 45 per cent of the variation in sales growth was left unexplained, and this can be attributed, in part, to factors not included in the analysis. It can, however, be concluded that the evidence presented above suggests strongly that there is a positive link between sales growth and changes in behavioural styles.

step 4: return on training investment

When the gains are translated into a dollar value and the total costs of the program considered, the CB ratio is 1080 per cent and the ROI is 980 per cent. That is, for each $1 allocated to the program, $10.80 dollars were returned, or a net gain of $9.80 for each $1 invested.

summary

Training is widespread, and substantial resources are devoted to training. However, relatively little evaluation of the contributions and benefits of training are undertaken. In this chapter we have illustrated how the evaluation of the training can be undertaken using the four-step evaluation process.

An important feature of the case study organisations is that their organisation profiles vary. For example, QR (Queensland Rail) is a government-owned transportation company, while Australia–New Zealand Direct Line is a privately owned company. Huntsman Chemicals is a privately owned manufacturer. Mission Australia is an important non-government charitable organisation. Target is part of the Coles–Myer group, which is a publicly listed corporation. Kodak and Franklins are Australian subsidiaries of large multinational corporations. The aim of investigating such a diverse group of organisations is to emphasise the point that training has a role to play in all organisations and that significant returns from training are not dependent on industry, ownership structure, and nature of business operations.

Significant returns can be derived when training is well designed, expertly delivered, when the transfer and acquisition of skills and knowledge is facilitated, and when organisations employ the new skills and knowledge productively. These returns compare quite favourably with other forms of investment. Statistical techniques can be used to help quantify the returns from training.

There is need for further research into this area. It is important that additional studies are conducted on evaluating investment from training by considering a broader class of organisations. Analysis is needed also to investigate whether returns from training vary across industries, different-sized firms, and training programs. Additionally, investigation is needed into the attractiveness of training relative to other investments.

notes

1 The employment figures relate to the division's employment and not to the parent organisation, for which employment levels are significantly higher.
2 The final models are free from heteroscedasticity, autocorrelation and misspecification. Heteroscedasticity was measured using White's heteroscedasticity test, the Breusch-

Godfrey test was used to test for autocorrelation, and Ramsey's RETEST was used to test for misspecification—see Gujarati (1995) for details of these tests.

3 The regression passed the usual diagnostic tests. Variables may be retained in a regression as long as the t-statistic exceeds the absolute value of 1, and as long as the inclusion of such a variable makes economic sense and is justified by the diagnostic tests.

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what works for us may not work for you

Leo Maglen and Sonnie Hopkins

Evaluating the returns to training at an enterprise level requires analysing the multi-layered and interconnecting set of relationships and decision-making processes involved in being in business. Training is not conducted in a vacuum, and the need for it, its design and conduct and its outcomes depend upon the nature of the enterprise's skills requirements, work organisation, job design, employment practices and its product, production and investment strategies etc. This chapter reports on the findings of a project that sought to investigate these inter-relationships and the impact they had on the efficacy in a number of manufacturing and service industry enterprises located throughout Australia. The methodology was developed out of the research program conducted in the United Kingdom by Sigmund Prais and colleagues over a number of years. This called for a detailed comparative approach between enterprises of similar size and producing similar goods or services. What the study found was that there was no single set of 'proven winner' or 'best practice' relationships between training effort and the host of other factors impacting upon enterprise performance. Indeed, it found that these relationships are contingent upon the idiosyncratic characteristics of each enterprise.

introduction

IN THEIR PENETRATING review of vocational education and training (VET) policy in the United Kingdom, Keep and Mayhew (1999) pinpoint a problem that goes to the centre of evaluating the relationship between investments in training, skills development and economic performance. Their diagnosis could well apply here in Australia:

> *Current UK VET policies . . . appear incapable of acknowledging that skills are often a third order issue. Unless and until first order questions, such as choice of product market and competitive strategy, and consequent second order decisions about work organisation and job design, are confronted the underlying cause of Britain's skills problem will continue to be ignored. The danger of policies and institutional devices . . . which concentrate on boosting the supply of qualifications and formalised skills and knowledge is that they appear to offer a*

> *relatively swift and simple short cut to a wide-ranging set of desired outcomes—increasing economic competitiveness, greater productivity, rising GDP* [gross domestic product]*, and greater social inclusion—without having to confront complex and difficult choices about how businesses choose to compete.*
>
> (Keep & Mayhew 1999)

The microeconomic studies we have undertaken (see Maglen, Hopkins & Burke 2001, but see also Hopkins & Maglen 2000) help to tease out the relationships between these first-, second- and third-order issues at the level of the enterprise. What we found, albeit from a limited number of case studies, is that there appears to be no one winning set of relationships that could be codified into a series of 'best practice' procedures, but rather that the key factors in optimising business performance are the linkages between strategic objectives and practice within the enterprise itself. In other words, what works in one enterprise may not necessarily work in another, but rather these linkages are contingent upon the idiosyncratic characteristics of the enterprise—its unique combination of internal and external circumstances. This notion of 'idiosyncratic contingency', developed by Becker et al. (1997), we have found useful in interpreting our results (Hopkins & Maglen 2000). Idiosyncratic contingency is seen as giving the enterprise a measure of competitive advantage, since imitation of successfully developed linkages may not only be difficult by competitors but may, in itself, be an inappropriate strategy, given their different circumstances. As Purcell explains:

> *Idiosyncratic contingency is especially interesting since it is based on the twin issues of path dependency and causal ambiguity . . . the numerous, subtle and often hidden interconnections between contingent factors make the experience of every organisation unique in time and place, and thus, 'imperfectly imitable' . . . Path dependency draws attention to the emergent nature of strategy and, therefore, the fact that what came before is a powerful force on what comes after . . . The implication of all this is that it points to uniqueness, to no one best path and to a focus on the individual organisation in a given sector or industry. While there may be a limited number of policy combinations in a configuration of HR systems and the deployment of non-human resources, the precise mix can never be predicted or assured.*
>
> (Purcell 1999)

Our research investigated a method aimed at demonstrating whether Australian enterprises that invest in the training of their employees gain a return from that investment through their employees being more productive. The study provided us with the opportunity to explore whether the effectiveness of training, as measured by labour productivity, could best be explained as contingent upon the idiosyncratic circumstances of the enterprise by being integral to business strategy.

Our study evaluated the use of comparative case studies as a method for demonstrating a relationship between training investment by firms and their labour productivity. The case study approach involves investigating

management processes and work practices so as to assist interpretation of any correlation between training and productivity. A lengthy program of research, based in the United Kingdom, by Sigmund Prais and colleagues, employing inter-country comparisons of similar enterprises (summarised in Maglen & Hopkins 1998), had shown productivity differences to mirror differences in levels of vocational qualifications. Those differences were considerable and had much to do with the contrasting VET policies of the countries concerned. We, on the other hand, sought to explore intra-country differences, and not in formal qualifications but in training expenditure. Whilst the demonstration of a relationship was not assisted by differences in the policy environment as it was in the Prais studies, the fact that our studies were, in effect, 'controlled' for this, meant there was a possibility that we could detect more subtle factors at work. Our evaluation of comparative case studies as a method forms the basis of *Training for productivity* (Maglen, Hopkins & Burke 2001). That report also examines findings for clustering of strategic planning and innovative work practices.

In this chapter, we revisit our findings to explore the relationship between training and strategy more fully. It should be borne in mind, given that our index of business performance is labour productivity, that whilst low labour productivity means poor business performance, good performance may require more than high labour productivity.

method

We compared a group of seven enterprises in each footwear manufacture and wire products manufacture, and eight enterprises in each supermarkets and accommodation sections of four- and five-star hotels. All were located in major urban centres and all States of Australia were represented. The results for supermarkets will not be considered here because the stores were outlets of two chains, and those chains were very similar in their business strategy and operation. To preserve confidentiality whilst facilitating intelligibility of the results and ease of discussion, each enterprise was allocated a pseudonym. This was done randomly, so nothing should be read into the names.

We interviewed managers, observed operatives at work and obtained employee views through questionnaires. Where possible, it was the chief executive officer whom we interviewed on the matter of business strategy, planning and the place of training within business strategy. We had sought data for the three-and-a-half financial years July 1995 to December 1998, but because some figures were missing, we resorted to calculating averages for training expenditure and labour productivity. And, regrettably, two of the wire products manufacturers proved unable to supply the quantitative data.

results

footwear

Figure 1 shows that labour productivity as dollar value added (sales minus materials) per hour of labour strongly correlated with the average expenditure over a year on training per person at the non-management level. There was a somewhat higher correlation between productivity and training expenditure for the same year than for the previous year, in line with training having delivered the increased productivity, not the other way around.

figure 1: average labour productivity in value terms against average yearly training expenditure per non-manager by each footwear manufacturer

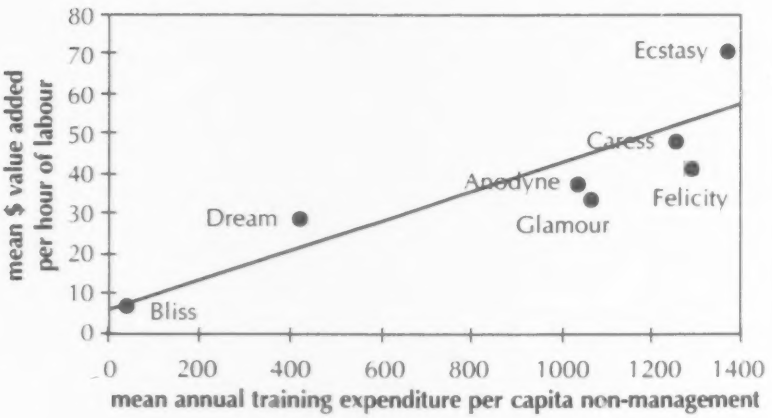


Table 1 provides information on business strategy and its relationship to training. Enterprises are listed in order of labour productivity levels. Given that strategy concerns both the overriding objectives of an organisation and the means whereby it proposes to achieve them, except for return on investment (ROI) (common to all firms) both have been shown in the second column.

It can be seen that the better performers planned at a strategic level; moreover for the two best performers and one other, training was integral to strategy.

In undertaking more detailed comparisons, it must be borne in mind that Ecstasy and Anodyne were in the heavier shoe market and, so, should be distinguished from the rest that competed in the mid-range women's fashion shoe market. Both Ecstasy and Anodyne produced what were, visually at least, high quality products; they both had quality accreditation and sold under brand names well recognised in the market. Ecstasy was committed to traditional production lines with up-to-date equipment and operators with a strong general education and highly skilled in their specialty. This appears to have delivered the efficiency to which its strategy was directed. But it also had a high turnover

rate amongst personnel. As it moves to an overriding emphasis on quality and service, retention may become more important and require some change in strategy.

table 1: strategy planning and training—footwear manufacturers

enterprise	strategy planning	strategy/objectives	training
Ecstasy	strategy planned five years out: operational plan increasingly a subset of strategy	• efficiency; being replaced by quality and service • expansion • superior technology and HRM systems	development plan for personnel part of strategy plan
Caress	vision document: one-year business plan as subset of vision document	• flexibility • total systems approach • low response time • value for money • niche focus	integral part of strategy. All personnel have personal development plans
Felicity	strategy planned five years out: operational plan a subset of strategy	• brand association with quality • continuous improvement • increased market share	training based on needs of the team; link to strategy indirect only
Anodyne	strategy planned five years out: being replaced by annually reviewed rolling five-year plan	• international brand • responsiveness through stock in hand • maximising ROI	skills profiling of individuals; assumed will meet strategic requirements
Glamour	strategy planned five years out: operational plan a subset of strategy	• quick response time • continuous improvement • a happy, safe and contented workforce	series of training strategies as subset of strategic plan
Dream	goals set by parent company	• quick response time • 'value-added management' system • to be at 'leading edge'	no human resource development planning
Bliss	production driven by requirement to put set number of lines onto market annually	• brand positioning	no human resource development planning

Amongst the women's shoe manufacturers, Caress was by far the most strategic in that it conformed most closely to current thinking on business

strategy. Its vision document consisted of a single page that gave direction to all parts of the organisation and was aimed at optimising responsiveness within the niche the company had chosen. Consistently, of all the firms studied in the research, it also came closest to being a knowledge-based organisation. For instance, managers were expected to know every other manager's job by periodically working together, and all personnel met monthly where developments were shared and discussed. It and two other enterprises, Felicity and Glamour, had moved to team-based production. Caress was furthest down the path to having self-managing teams. Furthermore, training was very consciously being directed at equipping personnel to be able to work in this way, through an emphasis on inter-personal skills.

In summary, our findings with footwear manufacturers provided good support for idiosyncratic contingency—the best performing enterprises as measured by labour productivity planned and operated strategically with training an integral component of strategy, whilst the poorest performers lacked these characteristics.

wire products manufacturers

Wire products manufacturers have two main types of product—springs and wire mesh. The automotive industry is a major purchaser of the former and the food industry of the latter. Labour productivity as value-added per hour against training expenditure per annum per member of non-management personnel is shown in figure 2. The scatter of points suggests two possibilities—either labour productivity is unrelated to training, or there are two populations, for one of which training is a factor.

figure 2: average labour productivity in value terms against average yearly training expenditure per non-manager by each wire products manufacturer

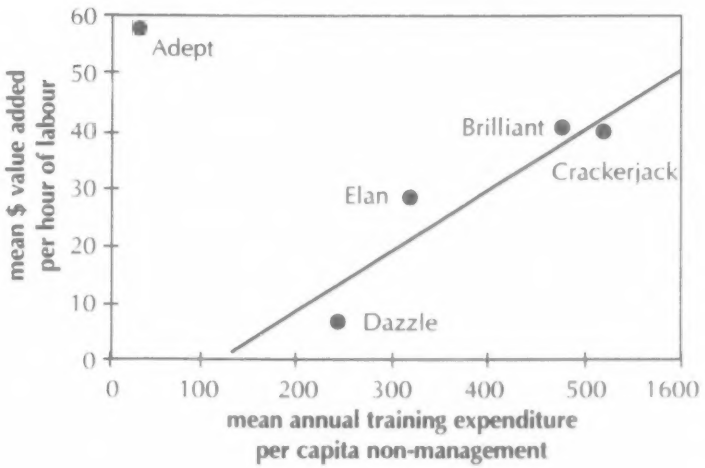


Table 2 shows strategy planning to have been undertaken by all except Elan, but none addressed training as a component of strategy planning. Albeit, Adept and Brilliant, in particular, appeared to have been addressing skills in ways that could be said to conform to idiosyncratic contingency. Adept sought to recruit already highly skilled personnel at other than labourer level. Personnel then were expected to self-teach on the job when a new process or piece of equipment required it, and/or undertake a publicly funded module or course at technical and further education (TAFE) if needed. Indeed, it seems that strategy planning did not need to address training, as possession of high-level skills by personnel was already the major strategy. Brilliant was the only truly small business in the research program (and only included in the study because of our inability to gain sufficient numbers of medium to large enterprises). Its preference was to recruit for technical aptitude and completion of Year 10 at school. Recruits were then expected to become competent operators of all machines over a two-year period—a realistic option given the size of the operation. It seems that, for both Adept and Brilliant, business strategy was dealing effectively with the capability of personnel in ways that fitted the particular circumstances.

Crackerjack had an ongoing problem in recruiting and retaining suitable personnel and was probably an exemplar of the difficulties besetting the automotive manufacturing supply sector—reducing margins was making paying over the award more and more difficult and, once skilled, labour could earn more elsewhere. Increasing automation is probably only part of the answer, as 'high tech' equipment was said to be less flexible than 'low tech', and component requirements vary over time—vehicle model to model. It might be questioned whether being 'strategic' means moving to a different niche! Indeed, that was what Elan was doing. It was in the process of moving into precision engineering manufacture, and skilling was becoming a more important strategy. Dazzle's clearly poor performance can be pinpointed to a prolonged period in a strategic void and management neglect. The factory was only starting to operate properly when we undertook the study.

It seems that idiosyncratic contingency is reasonably explanatory of findings with the wire products manufacturers we studied.

table 2: strategy planning and training—wire products manufacturers

enterprise	strategy planning	strategy/objectives	training
Adept	strategy planned five years out addressing products, processes and equipment	• specialist personnel skilled in quality, innovation, customer service • make own machinery where practicable • satisfied personnel	no planning as such. Twice-yearly assessments against job performance, plus personal career plans inform training decisions
Brilliant	strategy and operation planned two years out	• low overheads • large inventory holdings • quick response time • comfortable life for owners	no planning. Skills program to ensure all personnel skilled with all machines
Crackerjack	strategy planned five years out	• consistency in quality and service • ongoing technological change • continuous improvement in profitability • meeting customer expectations	no planning. Team leader trains on basis of need
Elan	production planning three years out	• skilled personnel including in use of 'high tech' machines, supported by 'low skilled' labour who are able to move around floor • loyal personnel	analysis of production plan to determine training demands
Dazzle	three-year strategy planning at company level; one-year factory operation plan	• brand synonymous with quality and reliability • casuals employed to meet peak demand • become a one-stop shop	strategic level—management training only. Floor level—on basis of annual appraisals

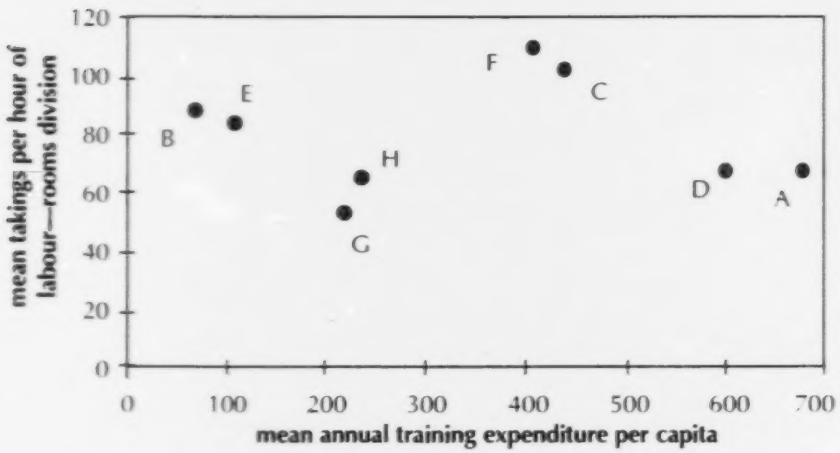
accommodation sections of four- and five-star hotels

One of the challenges we faced with studying hotels was how to measure productivity. Hotels deliver a service—or 'an experience' as one manager put it—rather than a tangible product, so value adding, whilst real enough conceptually, cannot be measured as it can be for manufacturing. Nor could we

use profit figures—quite reasonably, managers were not permitted to make such information available to us. So we had to employ measures that fail to take account of costs.

On the basis of percentage occupancy there was little difference across the eight hotels. And whilst the average takings per hour of labour for the various rooms divisions varied considerably, there was no relationship between it and average annual training expenditure per person (we were unable to exclude expenditure on management) (figure 3). We also measured rooms serviced per hour but succeeded only in revealing the rates set for room attendants. These reflected room complexity, which varied considerably across the group, and not only on the basis of the number of stars.

figure 3: labour productivity in terms of taking on rooms against average yearly expenditure on training per person



The hotels Delightful (D) and Amiable (A) were the only four-star hotels in the study; and the former was more 'luxurious', in our opinion, than were a couple of the five-star hotels. They were also amongst those with the lowest takings per hour of labour but spent the most on training on a per capita basis (table 3). Importantly, they treated training as a strategic issue. In contrast, none of the five-star hotels had training of floor level personnel embedded in overall strategy, in spite of the quality of personnel being a strategic issue for nearly all of them.

From our study, it is not possible to draw any conclusions for hotels about training as part of business strategy and its importance for business performance. Had some of the five-star hotels treated training in this way, and over a period of years, then it might have been possible to make inferences. It should be noted, however, that in all the hotels in the study, managers viewed training as an essential input. Without it they would have not been able to compete in a sector where margins are small and owners (usually overseas companies) demand a 'reasonable' level of return yearly.

table 3: strategy planning and training—hotels

enterprise	strategy planning	strategy/objectives	training
Festive	annual business plan	• 'down to earth' personnel • location • continuous improvement • flexible rostering	decided on through individual performance appraisal
Congenial	a five-year strategy plan provides direction; an annual operational plan is updated quarterly	• skilled and loyal staff • service, quality and value for money • customer loyalty • flexible rooms	decided on through individual performance appraisal
Benevolent	planning about five years out with respect to profitability	• hotel's physical attributes • a 'five-star experience'	decided on through individual performance appraisal
Eminent	strategy planning being introduced	• friendly and willing staff • attract, develop and satisfy personnel • client mix	*ad hoc*
Heavenly	planning mainly at division level in response to general direction set by GM	• skills and attitude of personnel • old-style hotel	decided on through individual performance appraisal in relation to training needs analysis
Delightful	company five-year strategy planning; annual business plan in response includes HR and HRD	• flexibility through size • high standard of service seen as genuine and individual • streamlining	subset of strategy (see to left)
Amiable	an annual business plan provides for all aspects, including human resources	• quality of personnel • exceptional customer service • client mix	a subset of business plan (see to left)
Gallant	five-year rolling strategy planning; annual feeds into divisional plans	• friendly helpful personnel • quality product • client mix • up-selling • flexibility	subset of strategy for management only. Otherwise *ad hoc*

conclusion

Gaining empirical evidence for idiosyncratic contingency is inherently problematic—uniqueness denies clear patterns of association. Nevertheless, we believe that we have found supportive evidence. Our results suggest that there are benefits to enterprises where they develop business strategy in a way that is visionary, geared to the individual circumstances of the enterprise, provides flexibility to respond quickly to opportunities, has a concern for quality enhancement, client interests and innovation, and treats training as integral to strategy or at least as a subset of it.

Idiosyncratic contingency places responsibility for major training decisions well and truly with senior managers and requires that they are highly capable strategists. There is no getting the answer out of a book or aping so-called best practice, although written sources and observation of other organisations can be informative. It suggests, furthermore, that good systems of communication must be in place so that training decisions are understood and effectively implemented throughout the organisation. And if people external to the enterprise are involved in design or delivery of the training, then they, too, should gain the same understandings.

Idiosyncratic contingency does not mean that there are no characteristics common amongst successful enterprises, other than that they are good strategists. Our results suggest that strategy is likely to involve certain broad ways of operating but that the specifics are enterprise-dependent. Those common characteristics are:

- work practices that empower the individual worker to exercise judgement and responsibility while working either as a highly skilled specialist, or as a member of a self-managing team, in a broad range of tasks
- recruitment and training practices that, together, maintain a high level of skill
- encouragement of workers to identify with their work by receiving recognition (in some form) for either high level or consistently good performance

It must be acknowledged that there is some overseas research which suggests that enterprises that compete successfully on the basis of price alone might have none of these characteristics (see, for instance, Hoque 1999). But the Australian economy—with its small, relatively discriminating and well-paid population—provides few opportunities for longer term success using this 'strategy'. Rather, the future success of businesses, as for the Australian economy as a whole, is generally seen as dependent on research and development, innovation, and a capable and knowledgeable workforce. We would add that these, in turn, depend on businesses being run by highly

capable managers who view their human resources as an asset crucial, and integral, to business strategy and that, therefore, have human resource management and development as key elements in their business operations.

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what convinces enterprises to value training and learning, and what does not?

Jane Figgis

In enterprises, both the 'inputs' that generate the learning of new skill and knowledge and the 'outcomes' expected from that learning are often—most often, in fact—qualitative in nature. Calculating a quantitative return on it is, therefore, often inappropriate as well as impractical. This chapter shows that common sense, observable indicators of qualitative change and of the actions that led to the change, can be devised which are reliable and useful. It also demonstrates that this kind of information can convincingly show the value of training and learning when that value is realised.

introduction

THE GENESIS OF the work reported here was our, and others', experience of how difficult it can be to persuade some enterprises (managers and/or employees) of the value of training. For example, the manager of one hardware retail outlet, who believed that training had substantially improved his business, was frustrated, and frankly puzzled, by his inability to convince any other managers in the same chain to 'do more training—or even to *consider* doing more training'. We have been told, too, that often when people hear the 'good news stories' of best practice firms' engagement with training, their reaction is to assume the exemplar has some special talent which they lack and they actually become less, rather than more, inclined to follow the training path example.

This study set out to investigate systematically how the experiences of small- and medium-sized enterprises which engaged in, and valued, training and learning might be used to influence other enterprises to reconsider their approaches to training and learning.

The project proceeded in two stages. Stage One focussed on studying ten enterprises in enough depth that we could construct a comprehensive picture of the strategies each used—including *why* those strategies were used—to further develop the skills and knowledge of individual employees and of the enterprise as a whole. In Stage Two, material capturing the most interesting and important ideas about training and learning emerging from Stage One was given to a new

sample of enterprises. The 19 enterprises in this second sample were asked to look at the material and give us feedback about what, if anything, they found that convinced them they might profit from rethinking their own approaches to training and learning.

The simple message we received—exactly as one would expect—is that people at all levels in both the Stage One and Stage Two enterprises want to know they are getting value out of the time, effort and money involved in training and learning. As one person put it: 'Training is always a cost, including opportunity cost . . . The art is to turn it into an investment—so the resources have been well spent'.

More revealing, and important, were the detailed messages we received concerning the outcomes which the enterprises valued, the signals which indicated to them that resources had been 'well spent', and the range of activities which delivered training and learning.

The next two sections of this chapter draw out those 'messages':

- what is valued and counts as an outcome of training/learning
- what delivers training/learning

That is followed by a final section:

- lessons on convincing enterprises about the value that can be derived from training and learning

what counts as a valued outcome of training/learning?

The ten Stage One enterprises had been recommended to us, from a variety of sources, as ones which put a significant emphasis on training and learning. As it turned out, they did so for a variety of reasons. One feature, however, was consistent across the enterprises. The outcomes they looked for were specific to the training/learning strategy adopted—that is, they were looking for *proximal* rather than *distal* effects—and they described the impact of training/learning in terms of things they could directly observe. They did not of their own accord look for traceable connections to the enterprise's overall profitability or productivity.

How the Stage One enterprises decided that the time, effort and resources they put into their various training and learning strategies were 'worth it' can most clearly be seen in the case study material. The selection presented here is intended to suggest the range of outcomes sought by enterprises investing in training and learning:

- improving internal communication
- flexible staffing

- ❖ minimising production down time
- ❖ embedding enterprise values
- ❖ succession planning
- ❖ community development
- ❖ meeting regulatory standards
- ❖ staff retention (or is it staff departure?)

The stories have been made as concise as possible without sacrificing all the colour of the original.[1]

improved internal communication—Stelform Engineering

Stelform Engineering designs, manufactures and erects a wide range of high-quality pressure vessels used in industry for heat exchangers, boilers and ducting. It currently has three workshops, all in the Newcastle, New South Wales area. It has been very successful—but in these times of a globalising economy, past success is no guarantee of future success. Indeed, the company has come to believe it will find it increasingly difficult to compete with the big international producers of pressure vessels, even on quality, and decided to rethink its business strategies.

John McColl, Stelform's Managing Director, believed, however, that to develop new strategies they would need new skills:

> *[T]o fully develop the potential of the organisation, there has to be open communication up, down and across the organisation on all issues—that is the only way we are going to get anywhere. We have to be able to look inside ourselves honestly and understand what is going on. To do that, all of us—me included—need to learn to communicate better.*

It was not that the 100 engineers and production workers at Stelform did not talk to each other. They did, often and frankly, so long as the subject was on technical matters. With non-technical and sensitive issues, however, it was different. Here, when issues came up that people disagreed about, they tended to let the matter slip.

So Stelform hired a trainer, at considerable expense, to teach them how to communicate better. The trainer was uncompromising—one might even say ruthless. She challenged people as individuals: 'you have too little self-esteem', and as groups: 'you collude to avoid confronting difficult issues and then quietly fight dirty'. There was some opposition to this treatment, and a number of people asked McColl to have the training stopped, or, at least, that they be excused from it. McColl held firm, and the two-year program, slightly modified, went ahead.

There remain to this day strong differences of opinion about what worked best. Some, who hated the one-on-one sessions in the beginning, came to value

them; for others it was exactly the reverse. Some liked 'game-playing', others got tired of it. But the people we talked to all could cite outcomes they thought were real:

> *You can speak your mind without offending people and that is a big change.*
>
> *I learned to persevere in the face of opposition. For example, they sneered at my draft recording sheets but instead of being discouraged and walking away from the whole process—which is what I would have done before—I asked how they could be improved.*
>
> *You ask if I've seen changes in other people here. I'm not sure. It may be that they were not as bad as I thought they were. If I see a change in them, maybe it's because I approach them differently.*

Whether the ultimate objective—innovative and successful business strategies for Stelform—will follow from the immediate improvements in communication is wholly unclear. But, it must be noted, no one discussing the soft skills initiative used that ultimate objective as a criterion in gauging the pay-off from this demanding training program.

flexible staffing: O'Reilly's Guesthouse

O'Reilly's Rainforest Guesthouse is a family owned and operated business, established in 1926. It is located in Lamington National Park in Queensland, about 150 kilometres south-west of Brisbane. Many of the guests have been coming for years—some now bringing their grandchildren. The O'Reilly business has recently expanded into new markets. On site now is Gran O'Reilly's Store and Bistro; down the mountain they have established Canungra Vineyards; the Guesthouse itself has been substantially enlarged and is attracting a new corporate clientele which uses the facilities for business planning retreats—very different from the traditional guesthouse folk. And more day-trippers are coming to the site.

Training—with a special emphasis on multi-skilling—is one of the key strategies for meeting the staffing needs of these growing and diverse operations. There are several reasons for this. The most obvious is that in a geographically remote location where most staff live on-site it makes economic sense to have staff who can fill a variety of roles. In times of high demand in one area or a shortage in another because of, say, sickness, having staff who can readily turn their hand to the jobs in other areas is preferable to trying to bring in relief staff.

There are a number of dimensions to their training for a multi-skilled workforce. These include specially written training manuals, close initial supervision, and careful up-to-the-minute checklists of the work required in each area. But it is the performance management regime at O'Reilly's which they consider key to developing a flexible workforce.

Performance management plans for all full-time staff are drawn up every twelve months, and goals are reviewed every six months. These are done one-on-one with the immediate supervisor. They serve as a training tool not just because each staff person's needs for further formal training are discussed at this point but also because they provide an opportunity for staff to discuss where else in the business they want to work and what plans they might have for promotion. The performance review document also has a section for 'personal' skills development or training. If these are seen to be of benefit to the company, then financial or time support will be provided. If not, the company will facilitate it but not pay.

Shane O'Reilly, the current managing director, has been instrumental in devising the performance review protocol. Despite the fact that this is a very time consuming process, Shane insists that the reviews be conducted thoroughly. He says he can see their value every day and all around—simply in the way people are working.

minimising production 'down time': Simplot Kelso

Simplot Kelso, just outside Bathurst, New South Wales, is the plant where all of Australia's fish fingers—and scores of other formed and coated frozen food products—are produced. The company, which has 170 permanent employees (augmented during maximum production by up to 100 casuals from a local labour hire company), has had a chequered history, being bought and sold in the early 1990s by a series of manufacturing conglomerates.

When Simplot took over the factory in 1996, its sales were at rock bottom, it had lost much of its expertise—one recent owner had fired all the leading hands—and the workers were, understandably, tense and unhappy. The plant was also losing $600 000 a year in labour paid but unable to deliver product. That was partly because workers were not supposed, quite literally, to step out of line. As one line-worker described it:

> *If you were on the packaging line and you ran out of product, there was a button to press. But we weren't allowed to press it. So we'd end up standing around with nothing to do.*

The huge bill was also because the machinery constantly broke down. Typically two to three hours a day were lost to breakdowns. Among the many tactics the new general manager used to turn the plant around (which included linking work instructions to Training Packages and creating two new positions for each line: a co-ordinator and a trainer—both positions filled by line workers), he took four of the maintenance technicians out of the central workshop and made each a full member of one of the line teams. Before the change, every time something went wrong on a line a trade-qualified technician came out from the workshop to fix it, grumbling the whole time about operators who 'can't run the machinery right'.

Learning to be a co-operative team was easier said than done. The technicians were being asked to share their knowledge with people whom they did not hold in high—or even medium—regard. Slowly, however, and with patient oversight from production managers, as the operators showed they *could* learn and fix things, the technicians became more willing to pass on their knowledge which freed them, in turn, to do pro-active maintenance. Some of the learning involved in this improvement is the 'traditional' transfer of skills and knowledge from someone who has it (the technician) to someone who doesn't (the operators). But the knowledge about how to work together was actually generated by each line's team members themselves.

Breakdowns are now down to half an hour a day and direct labour costs reduced to $120 000: a good outcome. It has led the general manager to create a new goal:

> *It is a question now of getting people to not turn a blind eye to problems which might be affecting the profitability of the plant. There is still a feeling that raising issues may involve dobbing in your mates. We have a lot of thinking to do about that.*

embedding enterprise values: St John of God Hospital

St John of God Hospital in Subiaco, Western Australia has an enviable reputation amongst its patients and employees as a 'good' and caring place despite the fact that it faces the same financial and other pressures as every other large Australian hospital. In part, that ambience comes from the fact that the St John of God sisters have provided ministry to the sick and needy for more than a century. Recently, however, the sisters have handed over administrative responsibility to a broadly constituted board and lay administrators.

In this transition from an 'Order-based' organisation to one of lay administration, careful attention is being paid to transmitting and continuing to live the values that underlie the St John's Order.

One means of attending to the process of continuity is through 'mission mentoring'. This is an active program within the hospital, where selected individuals are identified to participate in a yearlong program involving an aspect of pastoral care in the organisation. The participants must commit themselves over 12 months to five days of formal program and to undertake a project of benefit to the organisation as a whole.

In 1999 participants addressed the role of working with volunteers—a dedicated and important, but often forgotten, group within the hospital. The focus group discussions with volunteers during morning teas resulted in many small but significant changes being made. Volunteers' parking needs and parking payments were looked at and fixed. Scissors and secateurs were provided for them to do the flowers.

Volunteers came to be recognised as employees—albeit unpaid ones—who deserved the same treatment and recognition as paid employees. Mission mentoring also made an impact on the mentors themselves. This is the way Chris Nicholls, Co-ordinator Admissions and Clerical Services, saw the outcome:

> *Although in my ordinary day-to-day work I don't have much contact with volunteers, I came to appreciate the work they did. Now I greet them as I would any other worker in the hospital and respect their commitment to the hospital. While it wasn't easy to find a common project to work on that would make our hospital a better place for everyone, once we had decided on finding out what we could do for our volunteers, we became committed to one another and to them.*

succession planning: University of Wollongong Library

The University of Wollongong Library, like libraries elsewhere, faces a number of challenges including the high cost of books, journals and new technology—especially with the low Australian dollar. A further challenge, according to Felicity McGregor, the university librarian, is that getting highly qualified and skilled library staff is nearly impossible. Their solution was to:

> *hire Level 2 workers where little or no formal qualification is required and where it is much easier to find available staff. Then, by offering a range of programs to staff together with opportunities for them to act in different and more senior positions which they may then apply for, we see how staff perform in the work place and offer them opportunities for growth. We've called this 'job enrichment'.*

Job enrichment—or, as it is called in some enterprises, 'acting up'—is a well-established route to building depth in a workforce. It is a matter of placing people in slightly more senior positions: giving them a context in which they can learn and apply new skills.

Acting up also provides a mechanism for succession planning. Succession planning is typically thought of as an issue for senior management positions, but it can be, as at Wollongong, something that extends throughout staff ranks. Effectively, McGregor has created an internal labour market among the 64 permanent staff and 20 casuals. One lesson in using job enrichment in this way, however, is that people have to act in the position for a significant period of time—if it is only a matter of a couple of weeks, it usually decays into 'baby-sitting' the role not acting in it.

Another tactic used by the library to extend and enhance staff capacity is to form project teams to solve specific problems or issues. These teams are composed of people from across the library and at different levels.

The value staff identified in these training/learning strategies was:

- the chance to test out employees in a range of new posts without much risk

- employees gain new experience, variety, skills and knowledge of work mates throughout the library
- the effectiveness of many work-based practices are themselves subject to test, and if they don't work, they are fixed
- people have an opportunity to try out what they have learned
- the library develops a highly multi-skilled workforce of people who truly understand the other sections of the library

community development: Salty Seas

Salty Seas, a processing plant for wild oysters located in St Helens on the east coast of Tasmania, was set up two years ago as a project to help train unemployed youth in the area. St Helens, like many small regional communities, has a significant problem with youth unemployment. It also had a potential problem with its growing oyster industry.

The local oyster farmers wanted to expand their farming into Georges Bay, but the community was concerned that wild oysters would spread into the bay (from the stray spat of farmed oysters) and this would impact on beach activities. To address this problem the local farmers worked at securing markets for the large wild oysters and helped establish a processing facility for the wild oysters.

The Beacon Foundation, a non-profit group established 20 years ago to counter youth unemployment in Tasmania, became involved. The foundation employed Lex Weekes to oversee a 12-month aquaculture (Certificate II) course at the facility for 12 unemployed youth. The project was an outstanding success. The training itself won numerous awards both for the quality of the training and its trainees. Processing the wild oysters also proved a viable financial venture—in fact, one of the original trainees, Anita Astley-Paulsen, and Lex Weekes have taken over and co-manage what is now a profitable and expanding company.

One of the most striking aspects of the Salty Seas story is the way the whole community of St Helens has been involved in the project. The oyster farmers worked very hard initially to establish the venture, and a close relationship developed between the farmers and the original trainees. The young people were keen to talk to the farmers about the latest research and developments that they were learning. In turn, the 'old hands' shared their experience and wisdom with the trainees. The two-way exchange between Salty Seas and the farmers continues today. In fact, one of the interesting aspects of spending time at Salty Seas is observing the number of locals who just 'drop in' to see how things are going and have a bit of a chat.

So, what was originally a training project has led to a viable business, generating significant income and employment. Working at Salty Seas has kept

young people in the area and, as Salty Seas continues (and extends) its training program, the skill base available to other employers in the area has significantly increased. Community development at its best.

meeting regulatory standards: Harvey Beef

Harvey Beef, established in 1919, is a meat processing company located in the South-West of Western Australia. It began exporting beef to the United States a few years ago. Compliance with United States standards is strictly monitored, and the plant is regularly subjected to inspections by United States auditors. As a consequence, the company has had to ensure that all staff truly understand and apply safe handling procedures at all times, and this, in turn, means carefully training the 320 full-time staff and the additional 190 workers who come on board during the busy spring and summer months.

Prior to 1998, Harvey Beef had a system of on-the-job training which basically took the form of people new to an area learning from those with experience. Specific training in occupational health and safety aspects was provided by external trainers. The advent of the National Training Packages in the Meat Industry opened up some significant changes in staff development practices.

The plant identified a handful of training champions: volunteers who were keen and positive toward training and highly skilled in their jobs. Financial incentives were offered for these staff to work their way through Certificates II and III and to take on additional duties. These champions have helped make the training of other workers as non-threatening as possible—for example, a special CD-ROM which can read the written text out loud was developed, and people can take tests on-line which are self-paced and spell out the reasons why an answer is right or wrong.

Shayne Johnstone, a boner at the meat works, is an example of someone who has received an extensive amount of training at Harvey Beef. He was also someone who left school the minute he could in Year 10 with not a lot of confidence in his reading skill. He has now completed his Certificate II and the practical work in Boning Certificate III. He has attended a number of short (three-day) courses.

Of all the training he has received, Shayne was most impressed with the Yield Course, which showed how to get the most out of a body of beef. He was shown how he had missed a seam, and it was explained in dollar figures how much that would cost the company per year if he was to do that every time. It made a great impression on Shayne, and not only has he become a much more thorough worker himself but he has helped the 17 other boners do the same.

Shayne describes his experiences at Harvey Beef as great: 'I've never been happier in a job, I like the job, I like the place and I'm happy with the money'.

In fact, Shayne is so happy that he undertakes to drive from Rockingham to Harvey everyday—an over 200 kilometre round trip—just to do the job.

staff retention (or is it staff departure?)

All of the Stage One enterprises believe that one of the by-products of providing good training and learning is improved staff morale—although, as one person pointed out, it may not be so much the training itself but that most of us respond positively to having attention paid to us. On the other hand, talking to people at all levels in the enterprises made it clear that most people greatly value the skill and knowledge they acquire.

There is a nagging fear in some businesses, however, that if time and resources are put into training employees, those people become irresistible targets for 'poaching' by other enterprises. Most of the Stage One enterprises acknowledged that they had thought about the problem. Their 'answers' varied:

- Pretzel Logic, which is a phenomenally successful web-design business, *expects* the people it hires to leave. Its 50 staff are young by any standards—on average about 23 or 24 years of age. They are attracted to Pretzel because it has a reputation for being cutting edge, which means they will learn a lot from working there. In fact, Pretzel Logic looks for 'eager learners' when recruiting staff, and the job section of their web site is full of references to the opportunities there are for employees to learn.

  The flip side, of course, is that after a few years eager learners will want to move on to gain further experience elsewhere in Australia or overseas. The company simply accepts that this is the reality for their particular business. What it does is to ensure that while people are with them, their skill and knowledge makes a maximum contribution to the company.

- Training is now part of the enterprise agreements at Harvey Beef and nearly all workers engage in certified training at the company's expense, which gives them more advanced skills. Harvey Beef's attitude to any potential poaching of these people is simple:

  If you train enough people you will always have a backlog of skilled and talented staff so don't just train a chosen few and then you don't need to worry.

- O'Reilly's Rainforest Guesthouse simply quoted the remark made by Ziggy Switkowski:

  There is only one thing worse than training someone and having them leave. That's not training them and having them stay.

summary

These illustrations from the Stage One case studies—and many others not chosen—consistently suggest that the value enterprises (and the individuals in

them) derive from training and learning is conceptualised by them in terms of demonstrable changes in behaviour: demonstrable changes in the way people do their jobs and talk about their jobs. The evidence from our study is unambiguously that managers want to see outcomes directly, through their own eyes. In fact, so do the workers. Enterprise profitability, even productivity, depends on so many factors beyond the skill and knowledge of the workforce that the impact of enhancing that skill and knowledge base is difficult for them to isolate and identify. As a consequence, it is not where they look for outcomes.

what delivers training/learning?

With the exception of the web-design company, the Stage One enterprises all used formal training to develop workers' skills and understandings. In three of the ten cases this training included the use of Training Packages. For the others—and, indeed, for the three that used Training Packages as well—formal training extended to an eclectic mix of short and long courses, in-house and provided by external trainers.

All the enterprises also accessed a vast range of informal mechanisms to enhance people's skill and knowledge. Informality can be applied to two aspects of learning and training. It can refer to the degree of specificity (formality) of the *outcomes* expected or to the degree of formality in the *guidance* the learner receives.

Some outcomes are highly specified. The intended outcome at St John of God Hospital, for example, was that everyone who works there, including volunteers, should understand and 'live' the values of the hospital. The intended outcome at Stelform Engineering was that managers would become better at communicating about underlying concerns so they could grapple with sensitive issues. Specified outcomes like these can be achieved either through tight guidance—as the external trainer did at Stelform—or through the loose guidance of mission mentors at St John of God Hospital (although the mentors themselves learn their roles through quite 'tight' guidance).

At other times, intentional opportunities for learning are set up, but the exact outcome to be achieved is not firmly specified in advance. For example, when employees work on projects together across functional and hierarchical boundaries at the University of Wollongong Library, it is expected they will learn 'something' (and so will the organisation), but no one knows in advance what that learning will be.

Loose guidance is a familiar aspect of informality in training. Coaching, learning from team-mates, observing co-workers, conversation around the photocopier or in the car park—all loose guidance—are routinely used to help workers master new skills and extend their knowledge. The young people at Salty Seas, besides learning a great deal, obtain their demonstrable enthusiasm from the uninhibited conversation that permeates the place and the

experimentation all engage in. Altogether, we observed a wide range of informal guidance mechanisms for generating learning. These included:

- networking through local or industry associations
- mentoring
- internal committees to examine various issues
- lunch-time meetings
- informal discussions (conversations)
- modelling
- storytelling
- performance management and staff development planning

Enterprises in this and other studies look beyond formal training in part because formal approaches are burdened by certain constraints:

- *The cost of training*

  Robinson (1999) analysed Australian Bureau of Statistics figures and found that employers who provide structured training spent an average of $185 per employee in a three-month period—the equivalent of five hours' training (in 1996). Such a cost quickly adds up, and costs were a real concern to the Stage Two enterprises.

- *The effectiveness of training*

  There is evidence that although training makes a significant contribution to improving the poor performance of individuals—turning them into median-level performers—it does not have much effect in helping median performers become top performers in a workplace (Fuller & Farrington 1999, p.24). Fuller and Farrington, trainers by profession, conclude that high performance in a workplace does not come about because of training.

- *Training focusses on 'known' knowledge rather than generating new knowledge*

  The value of training lies in its capacity to equip individuals to carry out tasks in a competent and conscientious manner—whether that is inserting diamonds in drill bits, operating a new telescopic forklift or caring for 'at risk' teenage boys at a weekend camp. The required skills may be complex and demand ingenuity, including the ability to respond to unknown contingencies, but the individual is being groomed to cover a position which itself has already been defined. This is a very different situation from one where the enterprise (or a section of it) is seeking to redefine the way work is done or to 'ignite enterprise creativity', to use Buderi's phrase (1999).

What was particularly striking in the Stage One enterprises and, as it turned out, in the Stage Two enterprises, too, was evidence of a third dimension to

informal learning. Respondents in both stages described workplaces where there existed an environment or ambience, a culture, a sense of community—the terms varied—in which learning was 'natural' and appreciated: 'part of the way we do things around here'.

Every enterprise has a culture or micro-cultures. Argyris and Schön (1978) famously described these embedded ideas that invisibly mould one's response to circumstances as theories-in-use, as distinct from espoused theories. Later, Schein (1992), in studying organisational cultures and leadership, identified culture as the basic assumptions people in the organisation hold about the character of human nature, about the nature of truth, and about reality itself. Lee White from Stellar Call Centre in Perth, a Stage Two enterprise, talked about workers being 'steeped' in the environment and the company came to the conclusion:

> *If we treat our people how we want them to treat their customers, it becomes a learned behaviour even if it isn't a behaviour they demonstrate in a different environment.*

In the booklet of material given to the Stage Two enterprises, *Building on other people's experience*, we analysed the Stage One enterprises and recognised that they shared an interesting and distinguishing feature. They all had cultures which amplified the value of the training and learning—formal and informal—in which they engaged. They had cultures where training and learning, quite literally, worked. We described this in the booklet as follows:

> *When we visited the enterprises in this study, we could see there was something about them which made the training and learning they engaged in deliver special value both to the employees and to the enterprise itself. Something—call it their work culture or work climate—amplifies the usefulness of the individuals' newly acquired skills and knowledge so that the overall outcome is greater than the sum of its training/learning parts. This added value is important, and we have tried to understand how this kind of culture is constructed and how it operates in practice.*

It was not easy to extract the elements which build such a culture. That is partly because the ten enterprises we studied had very different cultures. One was a brand new oyster processing group that started as a training scheme for unemployed youths; another was an established metals engineering firm manufacturing sophisticated high-pressure vessels; another a guesthouse in the mountainous rainforest of a national park; and so on. They also went about the business of training and learning in very different ways. In one firm, for example, there was no formal training at all, while another had a plant-wide system of nationally certified competencies; one let the employees decide for themselves if and what they want to learn, while another had a specific staff development plan for each employee; and so on.

There were, nonetheless, several 'ingredients' that the Stage One enterprises had in common which seem to be at the core of workplace cultures that amplify individuals' training and learning:

❖ *People talk about what they have learned*

In every workplace a lot of learning inevitably goes on (as someone pointed out, even learning how to cope with boredom in very repetitive operations is a needed skill), but often—especially if the new skill or knowledge is picked up informally—people may not be aware they have acquired a new capability. One of the demonstrable ways our enterprises increased the value of what had been learned was to ensure people actually *notice* it—and the most obvious mechanism for directing attention to new learning is by people talking about it.

Conversations about learning—about what has been learned and how, about how things might be different or better—were part of the fabric of the enterprises studied. Conversation not only makes learning visible but in talking about it people necessarily reflect on it again. This act of reflection is itself a powerful factor in increasing the usefulness of training and learning. Several of the enterprises we studied had to work very hard and deliberately to construct a workplace where employees believed they all benefited from sharing what they had learned and could do.

❖ *Skill, knowledge and information are applied to the work at hand*

That might sound ridiculously obvious but, in fact, translating newly acquired skill and knowledge into real action does not happen automatically. As one person put it, 'workers can be as skilful and knowledgeable as they want to be but only as competent in performance as the workplace allows them to be'. In other words, it is not the training and learning by *itself* which helps the enterprise, but the ways it can be put to use to meet the needs of the enterprise. In several of the enterprises people described this as finding ways to *capture* skill and knowledge.

❖ *Many, many different forms of training and learning are used and supported*

We expected to find a reasonably wide range of methods for enhancing the skills, knowledge and attitudes of workers and managers, but the actual strategies—and combinations of strategies—successfully employed by the ten Stage One companies far exceeded our expectations.

On the other hand, not every kind of training program works. The enterprises we studied were vigilant—and honest—about whether a particular tactic was delivering what was wanted and at the expected level of rigour. We heard numerous stories about tactics that were tried that simply didn't work and were changed—sometimes in a major way, sometimes only a few adjustments were required. Thinking about the quality and suitability of a particular approach is *not* a matter of people ticking boxes about whether they *liked* a presenter or course. It is looking systematically and rigorously at whether people are learning and using what they learned.

- *Everyone in the enterprise is accorded genuine respect*

  Enterprises are inherently hierarchical. They have managers and owners, supervisors and workers with different levels of skill, experience and influence. What stood out for us—what made the learning vibrant and useful—is that people within the enterprises we studied respected the ability and importance of *every* member of the organisation. Time and again we were given examples of how respecting the capacity of people to grow ensured that they did grow.

  Management in these enterprises purposefully created 'threads' of respect and honesty which they wove through the entire enterprise. When one sees this in action, and the benefits it brings to individuals and enterprise alike, it is hard to understand why some businesses allow presumptions about status and worth to prevail and thereby demean and divide their employees.

The culture of the workplace is critical in obtaining on-going value from an enterprise's investments in training and learning. One can see immediately, however, from the four 'ingredients' which contribute to a culture which amplifies the value of training and learning how difficult it would be to calculate the cost of establishing and maintaining such a culture. Further, it feels almost immoral to suggest one might put a price tag on 'according respect throughout the enterprise', and it would certainly undermine the spirit of impromptu 'learning conversations' to clock the minutes spent in that activity.

convincing enterprises about the value which can be gained from training and learning

The most important lesson we learned about 'what is convincing' from the 19 Stage Two enterprises is that material given to them has to be 'real'. As one put it:

> *I'm a sceptic and the case studies are good because it shows you don't get there by magic. Those people had to make progress. The honesty of the case studies is fantastic. To be able to peer into their businesses like that.*

Honesty and reality are two sides of the same coin, and what people in the Stage Two enterprises responded to as 'honest and real' in Building on other people's experience was:

- *Telling the downside as well as the upside*

  We presented the difficulties enterprises faced as well as the rewards they obtained from investing in their workforce. For example, one section in *Building on other people's experience* was titled 'What about people who don't want more training?' where we listed some of the very legitimate reasons workers may have for not responding enthusiastically to the offer of training. We also pointed out that not all training is good training. And

we made it clear that it had taken the Stage One enterprises a long time to accomplish what they set out to and cited mistakes made along the way.

- *Providing concrete details.*

  In writing the case studies we were mindful of the work being done in designing 'expert' computer programs which rely on case-based reasoning. Researchers in that field have come to the conclusion that cases are important because people rarely think from first principles (Leake 1996). Mostly people think by remembering incidents and experiences—that is, cases—and when a similar situation arises, the knowledge and decisions embedded in the original case provide them with a starting point for interpreting the new situation or problem. It is the details which make a case memorable and, consequently, a useful thinking tool. We were gratified that very often Stage Two interviewees recalled specific incidents and remarks from the Stage One case stories.

- *Presenting a range of 'evidence'*

  The methodology employed in the research was expressly designed to deliver diversity among the Stage One enterprises. We contacted a wide range of individuals and agencies for suggestions of possible candidates. Our sources across the country included not only industry training advisory bodies, registered training organisations and government authorities *inside* the vocational education and training sector but regional development authorities, business enterprise centres, the Australian Institute of Management and other consultants from *outside* the sector. A number of the interviewees in the Stage Two enterprises remarked on the range of cases and, interestingly, said that they liked reading about enterprises which were different from themselves. The fact that they were different didn't make the material less relevant, although the respondents liked having some examples of *problems* similar to their own.

- *Writing in the most accessible manner*

  The case stories, above all, were written to be readable. The intention was to have people in Stage Two enjoy reading them in order to maintain their engagement. While we appear to have succeeded in this ambition, if we were to repeat this exercise, we would use a wider range of formats and provide much more information visually. *Building on other people's experience* was print-based and there was a lot of print: 118 pages in all comprising the ten case stories and 12 'themes and issues'. The result was that few of the Stage Two managers gave the material to shop floor workers. In one case where the attempt was made, the material was back on the manager's desk ten minutes later.

One of the most important findings of this study—and we cannot emphasise this too strongly—is that enterprises appreciate getting real and detailed insight into how other enterprises operate. They pay attention to how *exactly* problems

or issues of concern to them have been handled by others. Time and again we were told that the 'messages' in *Building on other people's experience* were worth reading because they were honest, candid and lively and, therefore, carried genuine authority. People need to feel they are being told the whole story if they are to believe any suggestion that they might profit from engaging their workforce in additional training and learning.

We probed to detect whether any of the Stage Two enterprises thought that the Stage One cases were 'too good to be true'—so perfect that there was no point in trying to emulate them or learn from them. Not one person responded in that way. Indeed, time after time what we heard was 'I could see us in that example'. The material was pitched to encourage enterprises, not to dazzle them.

Visiting the Stage Two enterprises and talking with them about the material further helped make the material convincing. We were left with the clear impression that without a set meeting date, other things would have taken precedence, and the actual task of engaging with the material often would have stayed a second-order priority:

> *Originally I just flicked through it but yesterday I went through it page by page and looked at it in detail, and I'm very glad I did.*
>
> *I re-read it again last night.*
>
> *I finally got through it all last night.*

But more than simply creating a deadline, the conversations actually made the material more useful. We were able to observe the Stage Two interviewees' interest in the material grow as we probed their ideas and they probed ours. In the interview with Chris Grogan, Corporate Planning and Development Officer for the City of Albany, for example, Chris and the member of the research team began to talk about the balances that need to be struck between formal and informal learning. At that point Chris said:

> *We need to have the kind of discussion we are having right now much more broadly . . . you know, most organisations have only one or two people looking after this sort of thing and they're very isolated.*

The tone we took with the material in *Building on other people's experience* helped make the interviews with the Stage Two enterprises enriching conversations. The material avoided implying a deficit in the reader. The booklet deliberately, if subtly, said to its readers 'you are no doubt knowledgeable and well intentioned already: here are some stories and ideas from other enterprises who may be a bit ahead of you or merely doing things differently from you—have a look'. It did not preach nor talk down to the reader.

It has to be said that not all the Stage Two enterprises became convinced that they ought to change their current approaches to training and learning on the

basis of the booklet and follow-up conversation. In fact, the enterprises fell into three roughly equal-sized groups:

- Cluster one enterprises found the material interesting to read and think about, but it did not inspire them to change their approach. This group included a few enterprises that already used the full range of formal and informal (including cultural) mechanisms for developing workforce capability, so there was little for them to learn. The cluster also included the manufacturing firms in our sample. They had in place an established tradition of formal training regimes and did not see much mileage in adding more informal approaches—at least not in the immediate future.
- Cluster two enterprises picked up 'snippets' of new ideas to try—especially in the area of informal learning. They talked enthusiastically, for example, about introducing projects in their enterprise, about creating mentors, and about taking a more systematic approach to their learning. These enterprises were interested in the idea that workplace culture can enhance (or inhibit) outcomes from training and learning but were not planning to follow through on their own culture. The material did reinforce for them, however, the importance of paying careful attention to workplace training and learning, and they intended to think about skill development and deployment in a more imaginative way.
- Cluster three enterprises were stimulated enough to reflect quite deeply about what they currently do and what they might do in the future. The material, in the words of one, provoked 'big thoughts'. Outwardly, these seven enterprises had almost nothing in common. They came from a range of industries: cleaning, community service, tourism, communications, machinery retail and repair. They varied in size from 1000 employees to a handful. The business environment in which they operate also differed: for some it has changed significantly (for example, the community service organisations); for others it is changing but less dramatically (for example, cleaning); and for others their business environment has changed relatively little (for example, the retail and tourism enterprises). What they had in common was a willingness to question their current practice. Interestingly, the enterprises in this cluster were all operating successfully. They were confident of themselves, and that seems to have been a factor contributing to their willingness to consider change.

In sum, engaging enterprises to rethink their approaches to workforce capability requires honesty and detailed evidence about what the changes might deliver and how one might go about generating them. It also requires personal follow through. If those precepts are followed, one can be reasonably confident that an enterprise will *engage* with the topic of training and learning.

But to actually *convince* an enterprise that it should significantly change what it is doing in terms of its investment in workforce capability is another step

altogether, and, unfortunately, simply sharing information about the return other enterprises have realised from their investment is not sufficiently powerful to make it a reliable tool for persuasion. Examples work in some instances, as our study demonstrates. But examples—even detailed, honest, well-written and authentic examples—can only lead an enterprise so far. They can never *prove* that one enterprise will significantly profit from emulating another even if the circumstances or problems are similar. They cannot even prove that the enterprise will obtain the desired learning outcomes.

On the other hand, inspiring enterprises to think about training and learning and about the outcomes they might aspire to—with hints about the techniques they may use to get there—is a significant achievement. Case examples done well can achieve that.

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note

1 The full case documentation and report on the research project is available at www.ncver.edu.au.

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